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Art. I.—THE DECIMAL SYSTEM OF MEASURES.

IN a country politically so circumstanced as the United States, it is no disparagement to the general intelligence of the people, or evidence of a stubbornness of genius, that in matters of a purely conventional nature, it should sometimes betray a backwardness in adopting reforms, or exhibit a stationary condition while adhering to the customs and prejudices of an anterior age. The chief difficulty in the way of generalizing a measure in the United States, which cannot be realized or enforced by the operation of law, consists in the want of a central power, with means and appliances adequate to meet the calls which emergency makes upon it. In merely conventional matters, the General Government has no part, either as a party concurring with the will of the States in their supreme capacity, or as the supreme power, to which the States submit in a subordinate capacity. This peculiarity in the political form of our government it is difficult to make a foreigner understand; and when he is brought to understand it, he is still at a loss how to appreciate it. That a sovereignty can exist within a sovereignty, is to him paradoxical; that each is supreme over and subordinate to each other, is a mythical anomaly. It therefore has caused much surprise, that while in the arts and sciences, and in physical industry, the people of the United States have made such considerable progress, they should be, in many respects, as regards their social relations, so far behind less progressive nations.

This fact is exemplified in nothing more palpably than in the little advancement we have shown in modifying our standards of weights and measures. It has been unjustly charged against us that we cling through prejudice to the old standards, while a

reform has been going on throughout Europe; but they who make the charge do not reflect that thirty-one States have a sovereign voice in choosing each for itself, and that, therefore, they are in the relative condition of thirty-one independent nations. Further, they do not consider that, by the very nature of our State and General forms of government, a complexity exists, which not even concert of action can wholly simplify or disentangle; and hence that reform, in this respect, is not retarded by public sentiment, or the stubbornness of genius, but by an obstacle in the fundamental organism. The General Government, for its own purposes, may adopt the metrical system; the States, for their individual purposes, may adopt the old arrangement: here is at once a conflict. The General Government, in its custom-houses, at its military posts, and elsewhere, may use the metrical measures; a few States, in their market-houses, in their workshops, and in their commercial affairs, may do the same; but both are again in conflict with those States which adhere to the old plan. The "inversion and reversion of sovereignty," as exercised by the States singly and as a federative whole, will prevent anything like spontaneous and universal reform in the conventional system of the Union; and that which is effected at all, must be gradual, and proceed from mutual concession, before our national legislature can assume the responsibility of declaring definitive action.

A pamphlet before us, entitled "A Letter to the Hon. Hannibal Hamlin, Chairman of the Committee on Commerce in the United States Senate, &c., by Alexandre Vattemare," discloses the fact, that Mr. Vattemare's good services have been engaged in exchanging sets of the standards of weights and measures of France and the United States between the two governments, and in endeavoring to bring the authorities of both countries to appreciate more intimately the distinctive features of the two systems. The metrical arrangement, where understood, is held in pre-eminent esteem, which is a strong guaranty that it possesses excellences not attained by any other system.

The arrangement common with us was originally one rather of necessity or temporary expediency, than of choice. Nor is it to be assumed that no efforts have been made to modify or perfect it. As early as 1790, Mr. Jefferson presented two plans to the House of Representatives, to one of which the existing denominations of weights and measures are conformed. The weights, capacity, and length measures are connected, and a scientific basis is proposed. In the other, the decimal system is introduced, the denominations are simplified, and the length measure is referred to a natural standard. Neither of Mr. Jefferson's propositions were adopted by Congress or the States.

In 1819, a committee of the House of Representatives pre-

sented a plan to conform to the weights and measures in common use. They proposed to obtain, through a commission, copies of the yard, the bushel, the wine gallon, and the pound, supposed to conform to those in common use in the United States; to preserve these standards, and distribute duplicates of them; to compare the length measure with the length of the second's pendulum, and also with that of an arc of the terrestrial meridian; to connect them by determining the weight of a certain bulk of distilled water; and to define the bushel and gallon by the weight of water which they contain.

Two years later, in 1821, Mr. Adams (then in Congress) submitted to the House of Representatives a proposition on the same subject. He recommended: 1st. "To fix the standard with the partial uniformity of which it is susceptible for the present, excluding all innovations; and 2d. To consult with foreign nations for the future and ultimate establishment of universal and permanent uniformity."

Mr. Adams' motion did not meet with favor—at least, it occasioned no action in Congress; but in view of all the circumstances of the case, and in the absence of specific legislation fixing a standard, the proper government department directed that the weights and measures employed in the custom-houses of the United States, and elsewhere in federal offices, should be made to conform to the propositions contained in the Report of the House Committee, above referred to, in 1819; and on this basis the system of American weights and measures rests. It is in effect the old English arrangement, (in operation in England before the adoption of the imperial standard,) which we have wholly borrowed, with only trifling and unimportant modifications. Congress has passed no laws declaring a standard; and it is only by tolerance that the system or arrangement exists at all.

The inquiry is often put, why, if Congress has never fixed a standard, the government should undertake to introduce a distinctive and peculiar set of weights and measures in the States, among the federal offices. The answer is, that Congress has, by legislative enactment, concurred in the action of the co-ordinate branch of the General Government, and legalized it under authority of the Constitution. Hence the original order of the Treasury Department, directing weights and measures, corrected to a uniformity, to be distributed throughout the States, has all the sanction of law.

In the pamphlet before us is contained a letter from Mr. W. W. Mann, which is descriptive of the French metrical system. We can hardly do justice to Mr. Mann's elaborate essay in a paper so brief as this is designed to be; but we cannot let the opportunity pass of compressing and extracting some portions of it

He says the system "is called metrical-decimal system: *Metrical*, because it is founded upon and derived from the metre-unit of measures of length; *decimal*, because, in all the multiples and divisions of the metre, and of the other units of the system, it is proceeded by decimals of tens—thus: tens, hundreds, thousands, tens of thousands; and tenths, hundredths, thousandths, &c."

Mr. Mann next furnishes us with a history of the metre, the basis of the whole structure. It grew out of a political necessity, consequent upon the consolidation of the French nation, and the absorption of Suzerain provinces. As each of these Suzeraincies had its system or arrangement of weights and measures, it became a matter of urgent expediency that one general standard should be devised. At the instance of the French Assembly, the Academy of Sciences was called upon to furnish a system; and the metre was chosen as the initial unit of the system. The word metre is taken from the Greek *μετρον*, The Academy decided that "the length of the metre should be the ten-millionth part of a quadrant of the earth's meridian, that is to say, the ten-millionth part of the distance from the equator to the pole, or one link of a chain of forty millions equal links, that would extend entirely around our globe, passing over the poles."

The meridian was selected, "not because it was in France, but because it was, in Europe, the longest arc of a meridian, the two extremes of which would rest upon the level of the sea, and within convenient distance of France." The difference between the French metre and English yard is hardly appreciable.

This difference is thus stated:—

French metre.....	inches =	$39\frac{3\,3\,3\,3\,3\,6}{1,0\,0\,0,0\,0\,0}$ in.
English imperial yard.....	"	39 "
Excess of French metre over English yard, about.....	"	$\frac{1}{3}$ "
Or, exactly.....	"	$\frac{3\,7\,0\,0\,9\,1}{1\,0\,0\,0\,0\,0\,0}$

Taking, therefore, the metre-unit as the initial for long measure, we come to consider its multiples and divisions.

"The nomenclature," says Mr. Mann, "has the cardinal merit of being suggestive of the thing signified. The name instantly suggests the amount and the nature of the measure. One has but to fix in his memory twelve short words, with their meaning, and the difficulty is mastered. * * * These twelve words are, in the first place, four of the ascending series, expressing the multiples or augmentations of the metre and other units. These are all derived from the Greek. They are:—

Deca, signifying.....	ten.
Hecto, "	hundred.
Kilo, "	thousand.
Myria, "	ten thousand.

"Next, we have three words of the descending series, expressing the divisions or diminutions of the metre and other units. They are all derived from the Latin. They are:—

Deci, signifying	tenth.
Centi, "	hundredth.
Milli, "	thousandth.

"Now prefix these seven words to the word metre, which we already know the meaning of, and we have the complete nomenclature of long measure under the French metrical system." Thus:—

The myria metre is	10,000 metres.
The kilometre is	1,000 metres.
The heclometre is	100 metres.
The decametre is	10 metres.
The metre is	1 metre.
The decimetre is	1.10 metre, or $\frac{1}{10}$ of a metre.
The centimetre is	1.100 metre, or $\frac{1}{100}$ "
The millimetre is	1.1000 metre, or $\frac{1}{1000}$ "

The reader will gather from this brief analysis a remote idea of the French system of length measure. While the principle is retained, the mode pursued in surface measure differs. The unit is called *are*, from the Latin area, and signifies, in the French system, "the superficial extent contained within a square, of which each side is ten metres in length. It is therefore ten metres square, and contains 400 square metres." The combination would be:—

The hectare =	10.000	square metres.
The *are* "	1.00	" "
The centiare "	1	" metre.

The hectare is equal to $2\frac{1}{2}$ acres (English measure) of land; or, exactly, $2\frac{4711143}{10000000}$ acres.

The measure of volume, or solid measure, has for its unit the *stere*, (Greek, στερεος.) The explanation is as follows:—

"The stere is the cube of a metre, and signifies the amount of matter contained in a mass one metre long, one metre broad, and one metre high," or in a solid body of six equal sides, like a die, of which each side is one metre square. We have, then, by the combination of words above described, the following denominations indicative of solid measure:—

The decastere, which is	10 cubic metres.
The stere, which is	1 " metre.
The decistere, which is	1.10, or $\frac{1}{10}$ of a cube metre.

The stere is equal to $35\frac{3146599}{10000000}$ English cubic feet. It has other properties, as submultiples and subdivisions.

The measure of capacity, for liquid and dry bodies, has a

unit, which iscalled litre, (from the Greek λιτρα.) The litre is a vessel containing the cube of the tenth part of the metre, or the cube of a decimetre. (The decimetre is one of the properties of the long measure, referred to above.) The vessel is described as square, and is, by interior measurement, one decimetre in depth, and each side measures a decimetre—in other words, "a square vessel, of which, by interior measurement, each side and the bottom are square decimetres." The combinations are as follows:—

The kilolitre,	which is	1,000	litres.
" heclolitre,	" "	100	"
" decalitre,	" "	10	"
" litre,	" "	1	litre.
" decilitre,	" "	1.10	of a litre.
" centilitre,	" "	1.000	" "

The litre is rather less than the English quart, being $0\frac{22}{100}\frac{0}{000}\frac{0}{000}$ parts of the imperial gallon, or $1\frac{76}{100}\frac{07}{000}\frac{73}{000}$ parts of a pint, or a trifling more than 1¾ pints. On this basis, with the litre as the initial, measures are designed for measuring the various kinds of bodies under this head, according to their nature.

Next we are presented with the unit for the standard of weights, which is called a gramme, (from the Greek γαμμα, a small weight.) "The gramme is the weight of the 1,000th part of a cubic decimetre of distilled water, taken at its greatest density, which occurs at the temperature of four degrees above zero of the centigrade thermometer (39° 2 Fahrenheit), and weighed in a vacuum. Take an accurately constructed litre, (which contains, as we have seen, one decimetre cube,) fill the litre with distilled water, reduced to the temperature above mentioned (+40 centigrade), and weigh it in a vacuum: the weight of that water is 1 kilogramme, or 1,000 grammes." Then follows the nomenclature of the system:—

Myriagramme	=	10,000	grammes.
Kilogramme,	"	1,000	"
Hectogramme,	"	100	"
Decagramme,	"	10	"
Gramme,	"	1	gramme.
Decigramme,	"	1.10	of a gramme.
Centigramme,	"	1.100	" "
Milligramme,	"	1.1000	" "

We have next a description of the uses of the several measures, according to this system; but these will suggest themselves to the reader—the kilogramme, for instance, in determining the tonnage of vessels, in expressing quintals, etc., and the superior and subordinate multiples and subdivisions of the gramme in fixing the ton, cwt., pound, ounce, etc.

Such, in a few words, is the decimal-metrical system of France.

It remains to connect this system with the money standard of that country; for the arrangement would not otherwise be complete. The franc is the monetary unit, having a value, corresponding with our dollar initial, of 18 cents 7 mills. All accounts are kept in francs and centimes, the pieces consisting of gold, silver, and copper, each containing a per centage of alloy. By law, the following are the denominations, weights, and solids of French metallic currency:—

GOLD.

Denomination.	*Weight.*	*Diameter.*
20 francs	6.45161 grammes	21 millimetres.
10 "	3.22580 "	17 "
5 "	1.61290 "	14 "

SILVER.

Denomination.	*Weight.*	*Diameter.*
5 francs	25 grammes	37 millimetres.
2 "	10 "	27 "
1 "	5 "	23 "
50 centimes	2½ "	18 "
20 "	1 "	15 "

COPPER.

Denomination.	*Weight.*	*Diameter.*
10 centimes	10 grammes	30 millimetres.
5 "	5 "	25 "
2 "	2 "	20 "
1 "	1 "	15 "

The franc has 9 parts of pure silver in 10, and 1 of copper. Its weight is 5 grammes with this alloy. All silver coins, multiples, and divisions of the franc weigh in exact proportion. The gold coins have the same degree of alloy as the silver, namely: 9 pure and 1 of impure metal. The alloy of the copper coins is as follows: 95 parts of copper, 4 parts of tin, and 1 of zinc—100. 3,100 francs in gold, 200 francs in silver, 10 francs in copper, weigh 1 kilogramme. We may thus perceive the combination and connection of the monetary standard with that of the weights and measures.

Mr. Mann says: "It is by decimal division and by the weight and diameter of the coins, that the connection is established between the currency of France and the metrical system of weights and measures. It was intended to make this connection more intimate and complete, by so regulating the diameter of the coins that, by placing a certain number of them in juxtaposition, touching each other, in a straight line, the metre and its various divisions might be reproduced." This can be done, thus affording, in cases of need, the various divisions of lineal measure with the coins.

Full justice has not been done to this subject, in the con-

tracted limits of this paper; but enough has been said to show that the question of standard in France has been regulated to a system, that it is a system which commends itself for its simplicity and exactitude, and that, with slight modifications, it could with advantage be adopted throughout the United States.

Art. II.—MANUFACTURING IN SOUTH CAROLINA.

THE apathy and want of enterprise in the South, and particularly in South Carolina, must be matter of astonishment to those who are acquainted with her geography and immense resources. It appears to be the disposition of the citizens of South Carolina particularly, to follow in the footsteps of their fathers, in all the pursuits of life, and they cry "Down with all innovation upon those customs."

When we consider the immense changes which have transpired in the world within the last twenty years, and we might say, with great propriety, the last ten, superinduced by the extension of commerce, the immense production of gold, the general diffusion of the practical sciences, the ease and cheapness with which intercourse with foreign nations can be carried on, and the great *impetus* given to commerce thereby, we are annoyed by the sluggishness and indifference manifested by those who are called the men of progress and enterprise of the South.

Twenty years ago, South Carolina invested all of her surplus capital in lands and negroes, and now she invests her capital in the same way, or in banking institutions, regardless of the changed condition of the world, and the changed condition of her lands. But a few years since, the North could not manufacture without protection, and now she cannot have the impudence to ask it. The poverty of her soil, and its unfitness to produce articles for foreign consumption, drove them into the enterprise of manufacturing the great staple of the South. By the unexampled industry of that section of our Union, and the skill and ingenuity of her machinists, she can now compete successfully with Europe in manufacturing, and is now acknowledged to be, both by Southerners and foreigners, the most flourishing section of our confederacy.

As my object is to call the attention of the people of South Carolina to the manufacture of their own great staple, I make the declaration that the manufacture of cotton can be made more profitable in South Carolina than in any of the Northern States.

The resources of South Carolina are superior, if not unsurpassed, by any State in the Union. She has a great extent of sea-coast, much of the finest quality of lands, particularly the

rich loamy soils lying on the sea-board, and the lowlands on her numerous water-courses. The best rice is made here, the finest article of cotton is also produced in South Carolina; her territory abounds in minerals; the richest gold mine ever discovered lies in Eatonville District, and in all probability there are many others within her borders of equal richness, for in that locality they are being discovered every day. Iron ore abounds in various portions of the State; and last, though not least, she yields the palm to no other State in the extent of her water-power, the cheapest motor by a great per cent. ever yet discovered, or possibly can be discovered. With all these unprecedented resources, the State of South Carolina is playing the sluggard over her untold wealth, employing all her labor and capital in cotton raising in competition with the fertile and generous lands of the South and the Southwest. These great resources will enable this State to support an immense population; they will act and react upon each other; the development of one will sustain and advance the development of the other.

It is evident to the most obtuse understanding that the manufacture of cotton can now be made a very profitable business in the State of South Carolina, far more so than planting. In the first place, labor is cheaper here than it is at the North, where Abbott Lawrence and many others have made their millions; second, because water power is cheaper; third, cotton in its raw state is much cheaper to the manufacturer here than at the North; fourth, the streams are never obstructed in the least degree by ice; fifth, the present cheapness of machinery in consequence of modern improvements, and competition in its manufacture; sixth, the comparative ease with which first-class manufacturing machinists can be obtained; seventh, the European exodus creating a rise in the price of labor, tending to throw the American manufacturer on an equality with the European; eighth, the threatened European war. In the above, I have stated some of the advantages likely to redound greatly to the benefit of the manufacturing interest throughout the Union, as well as others which peculiarly belong to the South and South Carolina.

If we draw a parallel between the North and the South upon this subject, we will find everything except skill in machinists and operatives offering superior advantages in the South.

In the first place, South Carolina has a decided advantage over the North, in the cheapness of her labor. This is a point I have heard stoutly contested by those ignorant of the facts of the case; by men who have never taken the pains to examine the subject. If the opponents of Southern manufacturing will only take the trouble to examine the Patent Office reports for 1851, on the agricultural and mechanical department, they will find there a true estimate of the cost of labor, both in the North

and South, employed in manufacturing establishments. It will be seen by such examination that the labor employed in Northern manufacturing is at least one hundred per cent. higher than that employed in the same business in the South. According to the Patent Office reports of 1851, the average cost of labor for men in Massachusetts, employed in cotton manufacturing, is $22 90 per month, and for females, $13 60, making an aggregate of $46 50. The cost of labor in the manufactories of South Carolina, according to the same report, is, for men, $13 94; for females, $8 30; thus making an aggregate of $22 24. According to this statement, South Carolina has a clear gain over Massachusetts of more than one hundred per cent. in the cost of labor necessary to carry on her manufactories, the most expensive department connected with this branch of industry; yet Massachusetts has 213 manufacturing establishments, and a capital invested of $28,445,650, and increasing it every day on account of the vast profits they are realizing. South Carolina, on the other hand, has only eighteen establishments, and a capital of $857,200. After examining the above statistics, we are amazed at the ignorance and apathy betrayed by the South, particularly by South Carolina, in her want of enterprise in this department of industry.

In the next place, the water-power of South Carolina is equal, if not superior, to any of the New-England States; all of her streams have their sources in the Blue Ridge Mountains, and rush over, shoal after shoal, through all the upper districts, down to the midland districts of the State. Many of them are large streams, such as the Broad River, Saluda, Catawba, and furnish large volumes of water; and as the falls are produced by these streams pouring over beds of granite, it follows that there is an abundance of building material convenient for erecting permanent manufacturing buildings. Water-power, beyond all question, is the cheapest motive power that can possibly be applied to machinery; it is as free and almost as constant as air, and in the State of South Carolina almost as cheap as air; for even her finest falls have never been looked upon as at all valuable until recently, and at a mere nominal value in comparison with those of the North, far inferior to them in power and facilities. Falls now in South Carolina on her largest streams, of unsurpassed beauty and power, upon the banks of which I might say, and say truthfully, that from twenty-five to fifty factories might be erected with but little more labor and expense each than the first, can be bought by paying the ordinary price per acre for the land in the vicinity. Perhaps where, in some instances, the falls are exceedingly fine, the owner may ask a small premium upon his land in consideration of this fact, which small value has been produced by having erected at the

shoals an inferior set of grist, flouring and saw mills, which yield a very small profit to the owner from the custom he receives from the surrounding neighborhood. These shoals are destined to become exceedingly valuable at no distant day, perhaps within eight or ten years, or even less than that, provided the attention of the people of South Carolina can be turned from the all-absorbing pursuit of making cotton to manufacturing a branch of industry equally as important, and, in my humble judgment, infinitely more profitable, thereby securing to ourselves the enormous wealth we annually pour into the lap of foreign nations, retaining the population already in the State, and bringing within our borders, from all parts of the world, energy, enterprise, and genius. We confidently believe that near the great falls on the largest rivers, which are not far from the centre of the State of South Carolina, that large manufacturing cities are destined, soon destined, to spring up, rivalling the Lowells and Lawrences of Massachusetts, diffusing wealth, refinement, and comfort amongst thousands who otherwise would have remained in ignorance and sloth; for not thirty-five years ago, Mr. Jackson laid the corner-stone of the flourishing city of Lowell, by erecting there the first manufactory, almost in a wilderness; it rose at once to the dimensions of a city, and now has a population of fifty thousand inhabitants, as large as the city of Charleston. He commenced this enterprise under auspices far more unfavorable than can possibly exist now in South Carolina. The city of Lawrence, on the same river, is also rising rapidly in wealth and population; in fact, every stream in Massachusetts is studded with villages and hamlets, produced by the talismanic effects of manufacturing. Her water-power, at this day, is worth millions in Massachusetts, and a large proportion of the capital invested in manufacturing establishments must first be expended in the purchase of this invaluable motor. It would not be extravagant to say that one half of it is laid out in its purchase. Now what is the fact in South Carolina? Her best power, as I have before stated, is worth, or will sell for, absolutely nothing; the only price asked is a fair and ordinary price per acre for the land connected with the falls. The capitalist, therefore, embarking in the manufacturing business in South Carolina, will be at little expense comparatively in purchasing a site for his mills, and when in operation, paying but half the price for labor that is paid at the North, which would give South Carolina overwhelming advantages over any portion of the North.

Another strong argument, appealing to the people of South Carolina to embark in manufacturing enterprises at present, is, that her best lands are now cut down and pretty much exhausted, and therefore cotton-growing cannot be made as pro-

fitable a business as it formerly was. Her people have now to compete with the South and Southwest, which has brought into cultivation recently so much of the rich and virgin lands of that section of the Union. The necessary consequence of this fact is, that in a short time the best lands in the State, the river lands, will alone be used for the purposes of growing cotton, and the great mass of our slaves will find their way further South and West. This assuredly will be the case, unless we find for a large portion of them a more profitable employment than cotton-growing can be in the space of a very few years. Where, then, can this employment be found? It can be found in manufacturing establishments. South Carolina can become in a few years the manufacturer of the South and West. She might make large profits by simply converting the raw material into yarns, and shipping them to foreign ports. The argument for this is, that many of the large manufacturing establishments of Europe confine themselves to the labor of converting the raw material into yarns, and selling to other establishments to be woven into cloths. It can be converted into yarns at a very moderate expense, and commands readily a profit over cotton in a raw state of nearly a hundred per cent. This kind of manufacturing does not require as much skill in the operation, and is better suited on this account to the inferior capacity of our slaves. Skilful machinists are not required at high wages, and the cost for machinery is much less; but it is not proposed to confine this species of labor to the slave, though his labor will be valuable in this department of industry, but there is a large population in the State in humble circumstances to whom the introduction of manufacturing would be the greatest of blessings, particularly to indigent females. The labor of the inhabitant of the poor pine lands in the lower part of the State, and the poor lands of the middle districts, and the tract of country bordering on the mountains and in the mountains, can be procured for manufacturing purposes at as low rates as that of the slave. Illustrative of this, the Graniteville Factory is worked altogether by white operatives, procured in the neighboring pine hills, in preference to the employment of slave labor; so that labor, whether it be free or slave, is a matter of choice to the manufacturer in South Carolina.

Another great inducement to South Carolina to engage in manufacturing at the present time is, that railroads are penetrating every section of the State. There are three lines of railroads running through the upper country, passing near the largest and best falls on her largest rivers. The Columbia and Charlotte road passes within twenty miles of the fine shoals on the Catawba, near Land's Ford. The Columbia and Greenville Railroad passes up the Broad River for some miles, and thence

on to Greenville, crossing the Saluda. The Union and Spartanburg Railroad connects with the Columbia and Greenville Railroad at the point where it leaves the Broad River, and runs up this fine stream for twenty or twenty-five miles, in the vicinity of some magnificent falls on that river, around which a canal has been cut. One of the public works of the State thus giving every facility, so far as relates to transportation, in tending to advance manufacturing interests in this section of the State.

We hardly deem it necessary to call attention to the fact, that the raw material can be obtained in the South, in those sections best adapted to manufacturing, for at least two cents upon the pound less than it can be laid down at factories at the North. In this, therefore, there is a clear saving to the South of at least 20 per cent., at the present prices of the staple. We regard this as a fact self-evident to every mind.

Again, the streams of the South are never obstructed in the least degree by ice. It is true, that this is not a great drawback to the factories of the North, yet it must be to some extent an inconvenience.

The machinery of a cotton factory is now much cheaper than it formerly was. Great improvements have been made upon it by American and European artisans within a short period. It is now manufactured at the North extensively on the very best models, and the competition in this trade has brought machinery down to a low figure compared with prices some years since.

There is no difficulty now in obtaining first-class machinists, which was formerly the case. The North has entered so largely into cotton manufacturing recently, that large numbers of operatives have become masters of this branch of business, who can be procured for a slight advance over the wages they get at the North. The strikes which are now going on in England for higher wages in the factories, will induce many of the most enterprising to seek employment on our continent. At this time skilful machinists can more easily be obtained than at any former period.

If there be a general European war, and there appears to be no preventive as matters now stand in Europe, the manufacturing interest must languish there. The immense amount of capital that will be drawn out of the regular channels of trade, to carry on a gigantic war, such an one as it assuredly will be, if France and England get fairly into it, will give the manufacturing interest of England a serious blow. The supplies of breadstuffs being cut off from England and France, hitherto furnished by Russia principally, and other European States, will raise them vastly in price, which is even now the case, and will continue to keep them up. This will also draw capital from all

the ordinary channels of trade and industry, manufacturing amongst the rest; and will increase the price of the operatives' labor. Hence will ensue strikes for higher wages, and the closing and the failing of manufacturing establishments in England, and perhaps the rest of Europe. Whatever retards the cotton manufacturing interest in England, advances that of the United States, when the causes are European in their origin. The manufacturing for the world must be done somewhere, and when the leading manufacturing nation of the world, therefore, becomes embarrassed, the benefit must redound to her most successful rival, which is the United States.

There is more encouragement at present for the South to engage in manufacturing than at any previous period. The times have changed greatly, since the present manufacturing establishments and enterprises in South Carolina were put into operation—I speak of those enterprises known in the State and the United States—the old Saluda Company, near Columbia, and the factory at the beautiful little village of Graniteville, which has risen around the factory in the pine hills near Aiken. The latter is making a handsome profit. We have now a great annual production of gold, both in California and Australia, which has enhanced the prices of all productions and all fabrics, and given an unprecedented impetus to commerce. We have the free trade doctrines of England—the spread of commerce, and its rapidly extending range, reaching around and around the world, visiting every nation, and opening the ports of every country. These things have revolutionized, and will continue to revolutionize the world, with unexampled rapidity. It is by the powerful agency of steam that the world is being drawn together, and every nation is becoming familiar with the government and laws of all other nations, and the barbarous becoming civilized. The transit of oceans and seas is now of little more moment than the passage of rivers, bays, straits, and channels were a few years ago.

The revolution of China is progressing rapidly, and soon her time-honored rule and her musty walls will have fallen forever, and the old Chinese Government, with its lowering superstitions, will topple, never to rise again, superseded by a government of progress, and worthy of the nineteenth century, giving light and life to a nation containing nearly half the population of the world, and which has been buried in barbarism for more than twenty centuries.

The dispatches received by the President of the United States from Commodore Perry, commanding the Japan Expedition, give a most flattering account of his negotiations with that hitherto sealed empire. If the ports both of China and Japan be thrown open to our commerce, the cotton-fields and

the manufacturing facilities of a portion of the South will be sources of untold wealth to that section of the confederacy.

Her easy transit of oceans and seas is a very significant and powerful argument for South Carolina, and all other portions of the South suited for manufacturing, to engage in the business of manufacturing cotton. The effect of this will be, that labor in Europe will rapidly enhance in price, on account of the diminution of her population, seeking more favored countries. The emigration from Great Britain and Germany to the United States has been enormous for the last few years. And this state of things will continue, with a large increase each succeeding year. For, in the same proportion as the inhabitants of Europe become acquainted with our government and institutions, and the facility for crossing the Atlantic increases, to that degree will they flock to our shores, until labor will bring as high wages in England as the United States. The emigration to Australia and the United States had the effect of raising the price of labor in England last year. Every rise in the price of English labor, England being the greatest manufacturing nation in the world, improves the prospects of the United States as a manufacturing country, as well as a producing one. If this state of things continue, and we see nothing to prevent its indefinite continuance, the United States must soon do the whole cotton manufacturing of the world.

The South, the genial South, with her ever-running streams, the raw material at her door—the cheapest labor in the Union, and an abundance of water-power, the cheapest of all motors, will become the centre of cotton manufacturing for the globe.

Art. III.—GUANO—ITS HISTORY AND ITS USES.

THE English Admiral, Moresby, has recently undertaken an estimate of the guano deposits on the Chincha Islands, and values the amassed stock at 8,600,000 tons; an amount which, for the present demand, would scarcely suffice for longer than eight or nine years. Some time ago, it was asserted that the layers exceeded more than 50,000,000 tons; and a semi-official article in the "Journal of Lima" gave, in January, 1852, the following statement:—18,250,000 tons on the Chincha Islands; 854,086 tons on the Gobos Islands; 7,921,407 tons on Chipana, &c.

The estimate of Admiral Moresby has given rise to great apprehensions regarding the future supply, which have been only diminished by the hope of the discoveries of new deposits. The English Government has encouraged the spirit of private enterprise, by putting premiums on new guano discoveries; and has

also enjoined investigations upon its squadron in the South Seas. A speedy success would be the more desirable, as it would render Peru unnecessary, and punish her for the monopoly she has appropriated to herself for so long time, to the disadvantage of the consumers. Guano of a good quality is only to be obtained from islands and bays visited by ichsyophagistic birds, and where rains are unfrequent. The guano from the arid districts of Peru could not, by the competition of the guano from the coasts of Patagonia, from the south coast of Africa, and from the islands and cliffs of Australia, be lowered in price; as all those countries have more or less rain, which deprives the guano of the most important ingredient—ammoniac. One of the better deposits on the Ichabol Islands, near the coast of Africa, was exhausted in two years. The Peruvian Government finds itself, therefore, in almost unbounded possession of a manure, the price of which is defined by the degree of usefulness; but will for the present time be granted, in many cases, perhaps, without an exact knowledge of the real value, in order to serve for trials. The Peruvian Government has therefore already, for some time, and, as it is supposed, for a considerable amount of money, transferred to Messrs. Gibbs & Co., of Liverpool, a monopoly of the traffic of this article. The price seems, to the English agriculturists, to be not in proportion to the value of the manure, as is shown in the imports; which were, in the eleven months ending the 5th Dec., 1851, 205,804 tons; 1852, 118,604; 1853, 97,578 tons. This diminution may have its causes very likely in the fact that, in the year 1851, a greater quantity of spurious guano, and for a cheaper price, was brought to England; and that the high price of the Peruvian guano gave rise to many other forgeries, which caused the guano to appear often of less utility as a fertilizer than it really possesses. Lord Clarendon has recently assured a deputation of the Royal Agricultural Society, which desired to enter into the guano traffic, of the negotiations with the Peruvian Government; but at the same time mentioned, that nitrate of soda from Mexico, and the many thousand tons of fishes which yearly in Newfoundland are thrown away, could easily replace the guano.

The subject of guano is now receiving the attention of Congress, upon the memorials of various agricultural associations and conventions. The American Minister to Peru, Mr. Clay, has thus written to the government:—

I need scarcely assure you that, during my residence in Peru, my serious attention has been turned to this subject, and that I have neglected no opportunity to impress upon this government the importance of furnishing guano to the agriculturists of the United States at a lower price than it is now sold, and that its agents should keep on hand a quantity sufficient to supply the increasing demands of the community.

The fact is, that, as the Peruvian Government relies entirely upon the amount produced by the sale of its guano in the United States and Great Britain to pay the interest upon the national debt, it is a delicate subject to touch upon, and on which to offer suggestions, and I have always found it necessary to approach it with caution; for, as the Peruvian nation is the owner of the deposits, the diplomatic agent who represents to its government the necessity of a reduction in the price at which it is sold, risks being met at the threshold by the intimation, that the possessor of an article of trade has the undoubted right to dispose of it as he may think proper. The feeling on the part of this government is, that the manner of disposing of the guano and the price at which it is sold are considerations which belong entirely and exclusively to the Peruvian nation, and are not subject-matter of negotiation with foreign powers.

Under the present system of contracting with mercantile houses for the sale of guano, the government can obtain an advance of money at any time it may be required, without the trouble of negotiating a loan in the manner adopted by other nations. This is found to be very convenient, as the government applies to the consignees for the sum it needs, the agents furnish the money, and render a semi-annual account of their sales and advances to the treasury, when they are not exposed to public scrutiny, as they would be in the United States. * * * * * *

We append some remarks upon the uses of guano as a fertilizer, based upon the experiments of D. J. McCord, an intelligent planter of South Carolina:—

LANGSYNE, *March* 22, 1853.

MY DEAR SIR:—In the winter I reside entirely on the plantation here, and my post-office is Fort Mott. Your letter, being directed to Columbia, was not forwarded to me until yesterday. I fear now that my answer will reach you too late, especially if you wish to apply guano to your corn. For many hereabouts have planted, or nearly done. I am not half done. But to begin with my answer.

For two years I mixed four bushels of dry sand with one bushel of guano. This year, to save trouble, I will mix two bushels of sand to one of guano. Fine charcoal, taken from the rail-road, a blacksmith shop, or coal kiln, is excellent, because, like gypsum, it will retain the ammonia—any dry, fine dirt will do as well as sand. My object for mixing is to increase the quantity to be put down more accurately by dull and careless hands.

My mode of mixing is this. I take for the purpose some dry shed—free from the wind is better, for it may mix and blow away much of it. I then take a coarse iron sieve and sift a layer of sand, and on that a layer of guano, until I get it all mixed for the field. If the sand or earth is damp, it will cause evaporation and loss. When thus prepared, you may put it into the ground just before you plant, or a month before. If put under the seed of corn or cotton, it should be covered by the plough or hoe, two, three, or four inches, so that when you put the seed in the ground over it, there may be two, or three, or four inches between the seed and guano; for if they come in contact it will kill the seed; but by the time the roots reach it, it will be diffused in the soil, and nourish and not destroy it.

I have only once tried it on an acre of corn. It was a very unfavorable year for corn, being dry. I put a tablespoonful (not heaping) of guano in each hill, and covered it with fresh earth, and the corn was then covered about two inches. The adjoining acre was manured as usual with stable manure and cotton seed mixed.

The acre manured with stable manure and cotton seed was seven or

eight inches high, while that manured with guano was so small and so wretched that I had some idea of cutting it up and replanting them. It rained, and in one week afterwards the guanoed corn was as large as the other, and soon became larger, and with much stouter stalks, and continued much the largest, yielding much better fodder; but the produce of corn was about the same, each acre producing between sixteen and seventeen bushels. I planted in five-feet rows the stalks two feet apart. A tablespoonful a hill will take from 180 to 200 lbs. But if I were intending to use guano on corn, I would not put the guano to it until it was up, and at the first ploughing run a bull tongue near the corn, and sprinkle the guano opposite the corn—a tablespoonful on each side might do, or half a tablespoonful on each side. It must be followed by another plough, and covered immediately. I have heard of much less doing. I have never made any other experiment with corn.

A bushel of guano weighs 58 lbs.

Now for cotton.

On cotton, I have used guano for three years.

The first year my experiment was a small one, but clearly showed the importance of guano.

In 1851, I matured twenty acres old worn-out red lands with two hundred pounds guano to the acre. It yielded:

1st Picking	900	lbs.
2d "	1,700	"
3d "	4,995	"
4th "	4,053	"
5th "	76	"
	11,724	lbs.

Average per acre, 616½ lbs.

One acre adjoining, same quality exactly, unmanured, yielded:

1st Picking	00	lbs.
2d "	00	"
3d "	60	"
4th "	108	"
5th "	76	"
	244	lbs.

Difference per acre in favor of guano, 372½.

In 1852, I manured 36 acres with 180 lbs. per acre. It produced 31,540 lbs. seed cotton, or 875 lbs. to the acre. More than half of the land was very old, sandy land, never manured; the rest inferior old red land. Of the adjoining acres unmanured, my overseer by mistake did not keep the weights; but I do not believe that it averaged 450 lbs. At that rate, the difference was 426 lbs. per acre.

For 1853, I intend to manure 34 acres with 174 lbs., which is 3 bushels of guano, and 10 acres with 100 lbs. to the acre. I am told that quantity produces well, and perhaps pays best, costing so much less. One of my neighbors last year used 1 bushel (58 lbs) per acre. He kept no account of weights. His overseer told me that he thought it produced more than twice as much as that not manured.

Now for my mode of putting down.

My acres are 42 compasses square—60 rows to the acre.

To put down 174 lbs. to the acre requires 3 bushels guano; and if 2 bushels of sand or dirt are put to each bushel of guano, it will take of the mixture 4 quarts, 1 pint, and 1 gill to each row.

To put down 100 lbs. to the acre of the same mixture requires 2 bushels of guano, (less 1 gallon,) and takes 3 quarts of the mixture to the row.

If you mix 4 bushels of sand to 1 of guano—

17½ bushels of mixture will give 200 lbs. to the acre.

15¼ bushels of mixture will give 180 lbs. to the acre.

15 bushels of mixture will give 174 lbs. to the acre.

13½ bushels of mixture will give 150 lbs. to the acre.

So you must make your calculation in proportion to the material you mix with the guano, and divide by the number of rows in your acre.

Let each hand have a small box to hold the quantity measured out of the bags for each row, and take care that it hold out as even as it can be put. They soon learn, after trying one or two rows.

You must not attempt to put it down in windy weather, or it will be blown away. Take out what you want for the day only, in bags, to keep from wind, and covered if rain should come, for it would be injured by getting wet, before covered in the ground. I forgot to say why you should sift it. In the first place, you mix it better by so doing; and besides, the guano has many lumps, and by sifting you get them out, and should break them in a mortar or trough, so as to mix it with the earth, otherwise these lumps would burn up everything.

I believe I have told you all I know. Gypsum is said to be excellent for mixing with the guano; and no doubt it would be so, as it would retain the ammonia.

This year I bought guano in New-York. It cost me, delivered here at Fort Mott, $50 for 2000 lbs. If many planters would unite and take a large quantity, it can be got still cheaper. By the new charter to the rail-road to Columbia, they can only charge 12½ cents per 106 lbs.

The fullest account that I have seen of the methods of using guano is an "Essay on Guano, by J. E. Teschemacher, Boston, 1845." It was distributed some years since, to those who bought guano, gratis. It was published by A. D. Phelps, 124 Washington Street, Boston, from whom, perhaps, it can be had; and by Saxton and Huntington, 295 Broadway, New-York.

I have been amused with some of the modes I have seen recommended by knowing ones in the newspapers, viz.: rubbing the cotton seed with it, &c. It killed the seeds wherever it touched it, the first year I used it; and my gardener, not regarding my cautions, burnt up everything.

Let me know how you succeeded with your guano. I hope you will receive this in time.

Art. IV.—YELLOW FEVER IN NEW-ORLEANS.

Dr. McFarlane, of New-Orleans, in reply to the strictures of Dr. Ely, in the Review, upon his theory of Yellow Fever, has forwarded us a very long and able manuscript. As many of its parts are more adapted to a medical journal, and others again are calculated to perpetuate a *personal* contest between the parties, we have concluded to insert such portions only as will set forth the author's theory in an intelligible manner, and vindicate him from popular misunderstanding. Dr. McFarlane has been for thirty years a physician of New-Orleans, and should therefore be heard with great respect upon such a subject.

As to my opinion, that filth, offal, and the like, will not create *yellow fever*, I am prepared to maintain it by all the circumstances under which that disease has ever occurred, and by all the records of history; and judged by those standards, I defy contradiction.

The immense morass or swamp, forty or fifty miles in extent, which forms the rear of New-Orleans, lying as it does below the level of the city, which forms an inclined plane from the Mississippi River, of course receives the *debris* and drainage of the whole city. This swamp is generally covered with water, containing every soluble portion of the filth of New-Orleans—but these agents are, to a great extent, rendered innocuous by the densely crowded and venerable cypress trees which cover it, and which, with their impervious drapery of moss, effectually protect them from the rays of the sun.

Immense, but of course fruitless, efforts have been made for eighteen or twenty years, to drain it by extensive machinery, but every deluging shower of rain inundates it anew, and of course the work has to be done over again—and over again, continually; thus its deadly contents are constantly kept in a state the most deleterious, viz., perpetual humidity. Still this unintermitted absurdity has done but little harm, because, although the protecting influence of the water is constantly being withdrawn, yet the dense foliage of the trees preserves our citizens from the deadly and pestilential malaria which would assuredly be developed from a morass of fifty miles in extent, with an incumbent deposit of decomposable vegetable matter, the accumulation of a hundred years. If the trees were to be removed, so as to expose by drainage these fearful elements to the influence of alternate deluging rains and burning solar heat, then might we anticipate the endless and universal presence of intermittent, remittent, lake, swamp, typhoid, and congestive fevers, all of which diseases are produced by the combined influence of heat, moisture, and vegetable decomposition. But we would have no yellow fever, unless the swamp were covered with water.

New-Orleans was always proverbially free from the above-mentioned diseases of miasmatic origin, until about six years since, when the draining experiment was carried a little further.

A few acres between the canals which lead to Lake Pontchartrain through the swamp were thoughtlessly and hastily exposed—the trees were rapidly removed, and the draining machines, drawing off the water, which, after each shower, was replaced by the filthy drainage of the city, which constantly saturated the vegetable matter throughout the swamp, and which being immediately succeeded by the burning heat of the sun, caused the whole exposed surface of the swamp absolutely to reek and fester, and throw out such pestilential exhalations that the whole neighborhood was overwhelmed with intermittent, remittent, and swamp fevers, sometimes of a most virulent and congestive type, ushered in by *coma*, and terminating in acute abscesses of the spleen and liver, but more frequently terminating in chronic diseases of those organs—a living death, which would render a fatal attack of yellow fever a blessing.

This disease proceeded gradually from the neighborhood of the swamp, diminishing in virulence, however, until it was met with by physicians, a mild intermittent, in the vicinity of the river, throughout the city.

During the aforesaid *six years*, we had no yellow fever in New-Orleans—but during the past summer, the incessant rains, the frequent interruption of the draining machines, together with their inadequacy to free the swamp from water, even when constantly employed, acted as a protection from solar heat, and prevented exhalation, and consequently intermittents, remittents, &c., disappeared, and yellow fever established his dread empire over our devoted city. Let it be remembered, that these terrible events

succeeded the exposure of a comparatively small and trivial portion of the swamp.

Now I ask, whether it becomes a thinking and ratiocinative being to close his eyes to the extraordinary coincidence which I have described above; and, although I take some blame to myself for having hastily presented my proposition, that filth, offal and vegetable decomposition might act as a preventive, and, to a certain extent, operate as a protection from yellow fever; yet my self-condemnation does not arise from the doctrines I proclaimed, but from my not having been sufficiently explicit in presenting them.

Contemplating the swamp as the reservoir of every soluble portion of the animal and vegetable filth, offal and deposit of the city—for no man in his senses can imagine, that the ten thousand times washed and purified silicious or argillacious soil beneath our feet could produce disease, and as holy writ declares, that afflictions spring not from the dust—I, with the lights of science to direct me, feel emboldened to go a step further, and say, that they spring not from mud, ten thousand times levigated, washed and filtered, like that of the streets of New-Orleans, and which does not contain one particle of soluble matter. But during the past *six years*, the soluble percolations were conveyed into the exposed swamp, and there brought into contact with the decomposable matter which has been so long accumulating; and altogether acted upon by a burning sun, and what did we see? Yellow fever? No—for six years we had no yellow fever—but instead, we had intermittents, remittents, swamp and congestive fevers.

What is there repugnant to science or to reason, in believing that the artificial and miasmatic atmosphere, which had been superinduced by the causes and processes above described, had acted as a preventive, during those six years, to the periodical attacks of yellow fever; and what extravagance could there be in describing the foul drainage and percolations, vegetable and animal, of the city of New-Orleans, when combined with the perishable deposit of the swamp, and as filth and offal, and declaring it as my opinion, that to a certain extent we *might* be protected from yellow fever by an atmosphere teeming with their exhalations?

Such were my opinions *then*, and such are my solemn convictions *now*; and as such I fearlessly proclaimed them *then*, and reiterate them *now*.

What did our wise Board of Health, who shuddered at my horrible heresies, intend to accomplish, when burning tar barrels cast a lurid gloom throughout our atmosphere, and made our city resemble one vast Pandemonium? What was their object, when, with the bellowing thunders of their cannon, they caused New-Orleans to present the horrible aspect of a sacked and devastated city, and which, by its fatal effects on the sick, almost emulated the dire consequences of such a visitation? What were the perpetual recommendations to employ disinfecting agents, (as they were called), throughout the apartments of our houses—what were all these means intended for, or what are they ever used for, but in the hope to create an artificial atmosphere, and thereby to neutralize the specific one, on which the spread of an epidemic disease is supposed to depend?*

And if I believed and thought proper to proclaim my opinion, that still

* The same ridiculous but destructive process was adopted by the Board of Health during the cholera of 1832, when it was estimated that several hundred victims perished untimely during the cannonade, terrified to death by the thunders of artillery and the noise of fractured glass, the windows having been broken throughout half the city.

The fact is, that Boards of Health, as heretofore constituted, are an essential imposture—a sublime juggle, whose very title, daily paraded at the head of an array of disease and death, is so supremely ridiculous.

The only Board of Health which any city requires is one qualified, experienced, and intelligent physician, of sound judgment and well balanced mind, who shall be clothed only with advisory powers, and reporting periodically to the city government, who will be accountable, in character and reputation, for the advice he gives or the suggestions he offers.

another omnipresent agent, *viz.*, *malaria*, might exercise an influence in the creation of an atmosphere antagonistic to that on which epidemic yellow fever depended from the exhalations of the swamp around and about us, an opinion which had been fully borne out by the experience of the last *six years*, why should I be denounced by all the world out of New-Orleans—that is, all who know nothing at all about the matter?

Art. V.—WOOL AND THE WOOLLEN TRADE.

THE annexed statistics of the wool manufacture and wool product of the United States are taken from the returns of the census of 1850. We append to them a paper upon the woollen trade of Great Britain.*

STATES.	Capital invested.	Lbs. of wool used.	Number of hands employed. —Males.—	—Females.—	Value of entire products.	Wool produced. Lbs. of.
Maine	$467,600	1,438,434	310	314	$753,300	1,364,034
New-Hampshire	2,437,700	3,604,103	926	1,201	2,127,745	1,108,476
Vermont	886,300	2,328 100	683	716	1.579,161	3,400,717
Massachusetts	9,089,342	22,229,952	6,167	4,963	12,770,565	585,136
Rhode Island	1,013,000	4,103,370	987	771	2,381,825	129,692
Connecticut	3,773,950	9,414,100	2,907	2,581	6,465,216	497,454
New-York	4,459,370	12,538,786	4,262	2,412	7,030,604	10,071,301
New-Jersey	494,274	1,510,280	411	487	1,164,446	375,396
Pennsylvania	3,005,064	7,560 379	3,490	2,236	5,321,866	4,481,570
Delaware	148,500	393,000	122	18	251,010	57,768
Maryland	244,000	430,300	262	100	295,140	477,438
Virginia	302,640	1,554,110	478	190	841,012	2,860,765
North Carolina	18,000	30,000	15	15	23,750	970,783
South Carolina	—	—	—	—	—	487,233
Georgia	68,000	153,816	40	38	88,750	990.019
Florida	—	—	—	—	—	23,247
Alabama	—	—	—	—	—	657,118
Mississippi	—	—	—	—	—	559,619
Louisiana	—	—	—	—	—	109,897
Texas	8,000	30,000	4	4	15,000	131,917
Arkansas	—	—	—	—	—	182,595
Tennessee	10,900	6,200	15	2	6.310	1,364,378
Kentucky	249.820	673,900	256	62	318,819	2,297,433
Ohio	670,220	1,657,726	903	298	1,111,027	10,196,371
Michigan	94,000	162 250	78	51	90,242	2,043,283
Indiana	171,545	413,350	180	57	205,802	2,610,287
Illinois	154,500	396,964	124	54	206,572	2,150,113
Missouri	20,000	80,000	15	10	56,000	1,627,164
Iowa	10,000	14.500	7	—	13,000	373,898
Wisconsin	31,225	134.200	25	—	87,999	253,963
California	—	—	—	—	—	5,520
District of Columbia	700	5,000	2	—	2,400	525
Minnesota, New-Mexico, Oregon, Utah	—	—	—	—	—	71,894
Total	$28,118,650	70,862,829	22,678	16,574	$43,207,555	52,516,959

Wool stands next to cotton amongst the raw materials used in the manufacturing districts of Great Britain.

As about five gallons of oil are used for every pack of wool by the manufacturers, to say nothing of soap, dyes, &c., and the consumption, last year, of British grown and foreign wool may

* From *London Merchants' Magazine.*

be fairly stated at 841,622 packs, it follows that 12,750 tons of oil, of some kind, olive or rape, were required, which, taken at £50 per ton, would give a value of £637,500 for the oil used. At least 70,000 tons of shipping are also annually employed in bringing us the raw material of wool from abroad. The supplies of Cape, Australian, and Continental wools, come almost exclusively to London, whilst those chiefly brought to Liverpool are the South American, East Indian, Portuguese, North American and Mediterranean.

Relatively to the other great staple manufacture of the country, (cotton,) the total value of the woollen manufactures stands at about 3 to 5, the cotton manufactures being valued by competent authority in Manchester at £50,000,000 sterling per annum. Regarding, however, the value of each manufacture, in proportion as that value arises from the use of British labor and capital, the difference is not so great as those figures indicate. In the cotton manufacture, £20,000,000 are paid for the raw material, produced, in great measure, in foreign countries, leaving £30,000,000 only as the wages and profits of British industry applied in its fabrication. The woollen manufacture includes £11,958,323 paid for British and Colonial raw material, and £17,374,999 paid for wages and profits of British manufacturing industry, together nearly £30,000,000; so that as far as the two manufactures are to be considered as British produce, cotton would stand to wool as 30 does to 29.

The value of all kinds of woollens, worsteds, worsted hosiery, and woollen and worsted yarn, exported from Great Britain in 1830, was estimated at £4,728,666; in 1840, at £5,327,853; in 1844, it reached £8,204,836, and was about the same amount in 1850; but in 1852 it had increased to £10,145,578.

The progress of our manufacturing art in the woollen and worsted trades has (speaking generally) doubled the production of wool in Great Britain in proportion to population.

The woollen and worsted manufactures form more than one-fourth part of our textile manufactures.

Betwixt one-fourth and one-fifth of the supply of the raw material for the worsted and woollen manufactures is of foreign or colonial growth. At the past rate of increase, in a quarter of a century more at the furthest, one-half the supply will be foreign and colonial.

In 1844, Mr. McCulloch made a rough estimate that the value of woollen and worsted goods made in the United Kingdom averaged about £24,000,000; that about two-fifths of that sum were paid in wages, and that about 350,000 persons were directly employed in it. In 1851, the quantity of wool used was 325 million pounds, the value of the manufacture over £30,000,000 sterling, and the persons directly or indirectly de-

pendent on the manufacture were computed at one million and a half. But it is admitted that the data for forming such estimates are insufficient.

The classification of wools coming into the market are AUSTRALIAN descriptions, arranged under "combing," clothing," "lambs," "skin," "pieces and locks," and "grease." SOUTH AMERICAN are divided into "merino," "mestizo," "common," and "Cordova," which are received in the condition of "washed and free from burr," "washed and burry," or "unwashed." Peruvian and Chilian, "washed," or "unwashed." Alpaca, "white," or "colored." New-Zealand fleeces are either "washed" or "unwashed." Spanish and Portuguese are classed into three grades, distinguished respectively by the letters "R," "F. and S," and "A." East Indian qualities, as known to the trade, are "first white," "second ditto," and "coarse;" "first yellow," "second ditto," and "coarse," "gray and burry." The Mediterranean wools are the Italian, Egyptian, Mogador, Tunis, Vidino and Scopia, Bosnia and Servia, Scutari and Scopia, Grecian, Syrian, and Smyrna, which are "white," "yellow," or "gray," "washed," or "unwashed." Russian consists of "merino" and "common," with a few subdivisions. Scotch of "laid," "Cheviot," "white ditto," "Highland," and "cross."

The quantity of Australian wool used in England far exceeds that of all the other "merino" kinds collectively.

Briefly, the countries besides Australia producing merino, or fine wool used for broadcloths, shawls, merinos, and other superior articles, are various parts of Europe, the United States of America, the Cape of Good Hope, and the borders of the River Plate. Our supplies of "common," "low," or inferior kinds for blankets, ordinary flannels, baize, carpets, &c., are derived from Great Britain, different parts of Europe, South America, North Africa, Turkey, and the East Indies. The United States and France are now importers. In Germany, Central Europe, and Spain, a large local consumption has also sprung up, and they send us much less wool than formerly.

The Buenos Ayres wools are generally imported unwashed, very dirty and burry. The fine wastes from 60 to 70 lbs. to the 100 lbs. in washing and burring. The total average annual exports of wool from Buenos Ayres, in the six years ending 1853, were 13½ to 14 million pounds. Of this quantity about 3,000,000 lbs. come to England, 2,000,000 lbs. go to France, and 6,000,000 to 8,000,000 lbs. are shipped to the United States. Our imports fluctuate annually, but arrive principally at Liverpool to the extent of about 3,000 bales.

The fibre of the native wool of Buenos Ayres is much like that of the common United States wool, but perhaps not quite so soft; the fibre has a spiral curl about it, which distinguishes

it from hairy wool; it takes color well, is generally dirty and burry when imported; wastes from 40 to 50 per cent. in washing, and from 10 to 15 per cent. in burring. Rio Grande wools, and Monte Video wools, from the River Plate, are about the same quality, generally imported burry and washed. They waste in rewashing and burring from 30 to 35 per cent. Cordova wool is grown about 700 miles back from Buenos Ayres, in a mountainous country. It is generally imported unwashed, wastes about 50 per cent. in coming to the cards, and is probably the best long wool imported from South America.

The Chilian, or Valparaiso, is a long, coarse, hairy wool, imported free from burr, and dirty; wastes about 50 per cent. before it comes to the cards, and is manufactured into the coarsest and cheapest goods. The coarser part of the fleece is often from 14 to 18 inches long, resembling much the hair on the extremity of cattle's tails, and is very different from the wool grown on the opposite side of the Andes, and the vast pampas between them and the Atlantic.

The Peruvian wool is long, coarse, and hairy. It is imported unwashed, and wastes about 50 per cent. in coming to the cards. It is used for the same purposes as the Chilian.

The African and Syrian wools have a general resemblance to each other. They are of a reddish color, occasioned by the sands of the deserts being blown into them. They are coarse, harsh, and hairy, and are spoken of in Prices Current as Syrian, Mogador, and Barbary wools.

The Scotch black-faced laid wools are largely produced in the Highlands; from 8,000 to 10,000 bags are annually imported into Liverpool. The sheep upon which it grows is hardy, and thrives where the more delicate races would die, and makes the best of mutton when well fatted. Upon this wool our carpet manufacturers draw for a large portion of their supply. The sheep are not housed in the Highlands, and for protecting them from the inclemency of the weather they are covered with a preparation of tar and grease, well rubbed on the fleece. Scotch wools are sold by the 24 lbs. weight.

The "unlaid" wool is from the same kind of sheep on the south side of the Highlands. This sheep is housed in cold weather. The "laid" wastes about 40, and the unlaid about 15 per cent. on coming to the cards. The nearer wool approaches hair, if it will take colors, the better it is for carpets, because it is more elastic, retains the dirt less, and sweeps better. The coarse hairy wools, of a brittle staple, are generally used for filling carpets and negro cloths.

Smyrna, Salonica, and Adrianople wools are coarse and hairy, rather harsh; staple of medium length. They are imported

washed and unwashed, and waste, in cleaning for the cards, from 40 to 50 per cent.

Crimea wool, grown in the south of Russia, and imported limed and unlimed from Crimea and the Black Sea, is free from burrs, and wastes from 40 to 60 per cent.

East India wool much resembles the former, and has not been inaptly compared to dog's hair. It has recently come forward in very large quantities. It is much used for the blanket and carpet trades.

Cape wools are mostly imported in the fleece, and are called hairskins, being valuable to, and eagerly sought by, morocco dressers. The wool or hair, or a large proportion of it, is of no value except to builders. It will not dye or take colors. The Cape colony supplies us with about one-seventh part of the wool we require.

We have thus taken a general survey of the classification and characters of the principal home and foreign wools. Great Britain and Ireland, with a population of 24,500,000, have about 32,000,000 sheep, or 1,306 for every thousand inhabitants. Now as Ireland, with seven or eight millions of inhabitants, is computed to possess little more than two millions of sheep, Great Britain, independent of Ireland, must stand considerably higher than any other country in Europe in comparing the number of sheep kept in the country with the inhabitants; more especially if we compare the weight of mutton and the weight of wool produced in the respective countries. Mr. Southey, one of our most intelligent London wool brokers, in his last published work, assumed that we annually clip 40 millions of sheep, while the fleeces of 15 millions more, slaughtered, pass through the hands of the fellmongers. The basis of the woollen manufacture then would be about 275 million pounds of home-grown wools. Thirty-two millions British fleeces, averaging 4 lbs. each, would give 450,000 packs, equal to 50,000 tons, and this, at an average of 10d. per pound, would amount to £4,500,000 sterling in value. If we add the foreign and colonial wool imported, 391,622 bales, equal to 47,905 tons, averaging it at 1s. 6d. per lb., we have £7,750,000 more, making the worth of the raw material nearly £12,500,000. The following different breeds of sheep are to be found in Great Britain:—The Teeswater breed, the Lincolnshire breed, the Dishley or Leicester breed, the Cotswold breed, the Romneymarsh breed, the Devonshire breed, the Ross or Ryeland breed, the Wiltshire breed, the Berkshire breed, the Dorsetshire breed, the Norfolk breed, the Dun-faced breed, the Southdown breed, the Cheviot breed, the black-faced breed, the Hardwick breed, the Welsh breed, the Shetland breed, and the Merino or Spanish breed. Some of the above varieties will be found to

suit one locality better than another, and some will certainly prove more profitable in any situation than some of the others, yet all of them have their advocates.

There are in London fifteen wool merchants, two wool warehouse-keepers, (Messrs. Browne and Eagle, and Mr. J. Cooper,) twenty-six wool-staplers, and twenty-one wool-brokers. The particular locality in which the wool-brokers domicile is in Basinghall-street and Coleman-street.

The London public wool sales are held at the Hall of Commerce, about every six weeks during the season, commencing in May, and closing in November. They are attended by dealers and manufacturers from Yorkshire, the great seat of consumption, and other English counties, and by continental purchasers. The Germans, Belgians, and French, who used to send us considerable quantities of wool, are now regular buyers in our markets, and their purchases at the last colonial wool sales were little short of £200,000. The sales vary from 30,000 to 70,000 bales at a time, according to the arrivals and stock on hand. 3,000 bales can be housed in daily, and 15,000 delivered from the London Dock warehouses, where 200 men are employed, exclusive of clerks and foremen. The imports into these docks alone average 130,000 bales annually, of the value of £2,600,000. Every bale, when on show, is inspected, by drawing out a sample of the wool, which, after examination, is thrown down upon the floor, and the buyers frequently walk knee deep in it.

The number of bales of foreign wool imported into London some years ago were as follows:—

Foreign Wool.	Bales Imported.	Foreign Wool.	Lbs. cleared for home use.
1839	54,683	13,294	836
1840	42,263	12,862	228
1841	39,192	10,238	517

COLONIAL WOOL IMPORTED INTO LONDON.

1839	38,572	bales, weighing	about	9,721,312 lbs.
1840	41,573	" "	"	10,311,637 "
1841	54,764	" "	"	13,845,555 "

The imports recently into London, classifying the wool, have been as follows, in bales:—

	1849.	1850.	1851.	1852.	1853.
German	11,061	6,982		35,517	26,084
Spanish and Portuguese	770	1,893			
N. S. Wales and Victoria.	95,932	106,606			
Tasmania	17,926	17,468			
South Australia	10,057	10,927	143,813	143,400	151,534
Western Australia	813	1,046			
New-Zealand	661	1,502			
Cape of Good Hope	20,345	19,855	19,688	20,987	22,515
East India	2,931	3,474	6,294	8,915	18,434
Russia	13,601	6,280	14,024	12,053	17,159
Peruvian	12,387	6,064	5,854	3,860	7,494

	1849.	1850.	1851.	1852.	1853.
River Plate	1,660	1,119	227	633	2,960
Barbary	1,600	3,173	4,423	4,313	5,787
Turkey, Egypt, Syria, and Trieste	1,203	2,978	3,732	6,749	5,857
Italian and N. American	973	515			
Sundry	355	532	92,647	78,059	118,174*
Total sheep's wool	192,278	190,414			
Goats' wool	13,254	12,884	7,298	10,980	15,624
Total imports to United Kingdom	285,190	278,022	318,000	325,166	391,622

The imports of colonial wools (Australian and Cape) into London and Liverpool were 163,988 bales in 1851, and 166,778 in 1852.

The whole imports, British and foreign, into Liverpool last year were 120,909 bales.

In 1852, the total importation of sheep's wool was 91,692,864 pounds, of which 11,266,939 lbs. were exported, leaving 80,425,925 lbs. for home consumption. Of goat's hair wool, 2,564,330 lbs. were imported in 1852, and 71,734 lbs. re-exported, 2,492,596 lbs. being consumed. Last year the imports were (taking the bales to average 2½ cwt. each) 109,654,160 lbs.

The following return gives the classified imports of wool into Great Britain for the last six years:—

	1847. Bales.	1848. Bales.	1849. Bales.	1850. Bales.	1851. Bales.	1852. Bales.	1853. Bales.
German	41,396	48,478	45,839	30,491	26,514	36,114	26,084
Spanish	1,953	403	516	2,105	5,272	903	947
Portugal	3,005	2,922	4,420	7,361	12,827	7,746	10,440
Australian	94,292	110,941	125,732	138,679	144,320	145,767	153,064
Cape of G. H.	13,566	13,409	20,345	19,879	19,668	21,011	22,708
Russian	7,055	7,402	19,681	9,758	15,259	13,687	21,857
Sundries	84,529	89,482	71,657	69,749	83,225	89,563	116,522
Totals	246,796	273,037	285,190	278,022	307,085	314,791	391,622

The proportion of foreign to colonial wool imported is shown by the annexed figures:—

	Colonial.	Foreign.	Total.
1851	174,744	132,341	307,085 bales.
1852	185,670	129,121	314,791 "
1853	210,979	180,643	391,622 "

There is a little discrepancy in the returns from which we quote, for Messrs. Hughes and Ronald, of Liverpool, give the total imports in 1851 at 318,000 bales, and in 1852 at 325,166 bales, of which 207,929 was foreign wool imported into London.

The imports of Foreign, Colonial, and British wools into Liverpool, from 1835 to 1853, have been as follows:—

* The sundries in the last three years include the imports.

	Bales.		Bales.
1835	52,075	1845	91,931
1836	76,088	1846	101.124
1837	60,924	1847	94,143
1838	75,057	1848	101,649
1839	78,108	1849	80,64
1840	77,794	1850	82,028
1841	92,922	1851	93,102
1842	51,427	1852	88,526
1843	61,922	1853	120,909
1844	74,309		

The total imports of wool into the United Kingdom, in the last four years, according to the annual circular of Messrs. Hughes and Ronald, have been as follows :—

	Bales.		Bales.
1850	278,022	1852	325,166
1851	318,000	1853	391,622

The increase in the supply of East Indian wool has been very remarkable. In 1850, the import was under 10,000 bales, while for the past year (1853), it has exceeded 35,000, of which more than the half came in through Liverpool. China is also coming forward as a producer, having sent us 1,000 bales last year.

The progressive imports of wool from our East Indian possessions are shown by the following figures :—

	Bales.		Bales.
1847	8,123	1851	12,478
1848	16,923	1852	21,109
1849	11,041	1853	35,207
1850	9,704		

Art. VI.—TEXAS AND HER PROSPECTS.

[The passage of the Great Pacific Railroad bill by the Legislature of Texas, framed in the most liberal spirit, offers to that State the prospects of a bright future, and events may be expected very speedily to determine it. We shall refer to this railroad measure very soon in the Review, but in the meanwhile take pleasure in furnishing a contribution from the pen of Mr. Gilbert, of the *Matagorda Tribune*.]

It will be seen that the country bordering on the Cibolo stream is alluded to for the fine qualities of its land, its luxuriant pastures, pure water, and adaptability to sheep and cattle raising. The soil on the margin of this stream partakes of several varieties: in the valleys, the black alluvial deposits, which is vastly rich and almost inexhaustible, resists the drought, and is capable of producing every description of crops; and the more elevated slopes, a dark brown sandy loam, called "post-oak," is to be found, which is also an excellent descrip-

tion of soil. The section of the Cibolo through which we passed is better timbered than any other portion of the route between the Guadalupe and San Antonio. The Cibolo is settling up rapidly with sheep and stock raisers, and several planters have recently entered into cotton growing on a large scale. We saw several fine fields of the great staple under cultivation, looking remarkably vigorous and promising. However, it is our opinion, that the business will never be carried on to any great extent here. Its remoteness from a market, (until the railroad is completed, or cotton manufactories established in San Antonio), the scarcity of heavy tracts of good land connected, so essential to the success of cotton planting, together with the more certain, and equally profitable production of wool, will give a preponderance to the latter. The Cibolo takes its source in a chain of mountains some several hundred miles to the N. W. of its confluence with the San Antonio River, where it enters some 50 miles below that city. At the "crossing," about 30 miles coastward, or to the east of San Antonio, there is a scattered settlement of agriculturists, sheep and stock raisers, who have recently cast their fortunes in our promising State. We presume there is very little, if any, unlocated land in this vicinity. However, we have noticed large tracts advertised for sale, recently, by agents and speculators, and have been informed that desirable locations can be purchased here at from $1 to $3 per acre. Should the contemplated San Antonio and Mexican Gulf Railroad be constructed, as it doubtless will be in the course of a few years, lands in this portion of the State must become greatly enhanced in value. If our correspondent designs entering into sheep raising, we would especially direct his attention to the Cibolo country, although there are many other sections of Western Texas affording excellent facilities for the successful prosecution of this branch of industry. The fine muskeet pastures in the vicinities of the Medina, the San Antonio, and further north, the Comal, are scarcely less inferior for this purpose, in many respects, to the Cibolo, although our own choice would centre on the latter. On the two former, the few experiments that have been made, have been crowned with the most eminent success; and we are informed that many persons are about entering into the business extensively on the Medina. The rich valley of the Colorado is also well adapted to sheep raising, although we believe that but few attempts have yet been made to test its practicability. Some few years ago, a gentleman brought out from Western Virginia a small lot of improved stock to Colorado county, for the purpose of crossing with the Mexican breed, and he informed us that they succeeded admirably well. However, other pursuits calling his attention, he sold out, since which we have heard nothing of the re-

sults of the enterprise. Indeed, almost every portion of Western Texas is well adapted to sheep raising, and many years will not roll by ere wool will become one of our prime staples, and the pursuit one of the most profitable branches of her industry. The reasons are obvious. Our prairies afford the finest grasses in the world, without the labor of man; our winters are mild, open, and warm, furnishing green food, with a regularly growing fleece nearly the year round, but a small capital is requisite to engage in the business, almost within the reach of every industrions man, the returns are rapid, the expenses attending the pursuit merely nothing in comparison with those in the higher latitudes, and the profit large at the present high premiums for the staple. Lands are cheap, our population is increasing, transportation facilities improving, and the demand for domestic wool rapidly on the increase, with a corresponding advance in price with the consumption. It is the opinion of many experienced men in the business, that wool growing in our extensive prairies, if properly conducted, could be made far more profitable than cotton or sugar. However, all these productions have their peculiar locality in Texas, better adapted to their growth and production in some sections than in others. While Old Caney, the Colorado and Brazos bottom lands are celebrated for their sugar and cotton, the Western prairies for their sheep and stock raising facilities, the mountainous regions in the northwestern portion of the State offer best inducements for the cultivation of all of the cereal grains. In McLellan county, high up on the Brazos, the farmers have gone into the cultivation of wheat, rye, oats, &c., with eminent success. An extensive range of country above Austin, on the Colorado, offers, probably, equally favorable inducements for this pursuit. In the German settlements further west, on the Comal, Medina, and on the Hondo, Seco, and other streams, the few attempts that have been made at raising wheat have succeeded remarkably well. Corn will grow indiscriminately, and in the greatest abundance, in every portion of the State, with less labor, and a more bountiful return than, perhaps, any other part of the world. From sixty to seventy bushels per acre is an average production of the Caney and Peach Creek lands, which, doubtless, might be increased by a higher degree of cultivation. None is raised for transportation, as cotton and sugar pay best. In favorable seasons, these lands average from one and a half to two bales of cotton, or two hogshead of sugar to the acre. Land in these vicinities is always in demand, brings a high price, and is either held by minors, non-resident, or is already under cultivation. Small capitalists could do better higher up on the Colorado, or fur-

ther west, where land is cheaper, and better adapted to small farming. There is some very good land in Matagorda county, bordering on the bay and its tributary creeks, very well calculated for limited farming operations and stock-raising combined, or the latter alone, and affording the advantages of a convenient market and access for shipments, which can be purchased at low rates—say 25c. to 50c. per acre. This soil might be rendered capable of good production by cultivation, but timber is scarce here. The prairies afford excellent pasturage for stock. Some attempts have recently been made to grow sheep on the coast ranges on the western side of this bay, and although we had some grounds for sanguine hope of its practicability from previous experiments, we regret to learn recently from those who engaged in the business, that it does not succeed well. The sheep sicken and die in large numbers —whether from disease contracted in the low altitude, or from deleterious grasses of the locality, is not known. On the opposite, or peninsular side of the bay, which is more elevated, they appear to succeed better.

With regard to the price of the different grades of sheep in Texas, we are scarcely enabled to give a definite answer. In Matagorda county there are not more than four or five thousand altogether—and we know of none for sale. They are principally crosses of the Merino and South Down with the Mexican, and may probably be estimated worth $2 50 per head. In the neighborhood of San Antonio, Mexican sheep can be purchased at $1 a $1 25 per head, perhaps less just now, as we understand that large droves have recently passed over the Rio Grande into Texas. Some few of the improved breeds have recently been imported into the State by stock-raisers—none, however, we imagine, for sale. Sheep of this description would bring a good price in Texas, and emigrants designing to engage in the business here should bring a stock to commence with. The Merino, for several reasons, is considered best suited to our climate. They possess strength of lungs and limbs, and being originally from a warm temperature, are easily acclimated. Climate is a law of nature, and her laws are generally found to harmonize. Practical experience has established the fact that sheep are not necessarily inhabitants of the snow-clad regions, but, on the contrary, are found to improve in vigor and wool in the lower latitudes. Thus, every advantage considered, the prairies of Western Texas present the best facilities for sheep raising of any part of the world.

Art. VII.—THE TOBACCO TRADE FOR 1853.

[We are indebted to Charles De Ford, merchant of Baltimore, for the following views upon this subject. It will be perceived that the writer confines himself for the most part to the statistics of his own city. Those who are disposed to pursue the subject will find full particulars of the tobacco trade of other great marts in previous numbers of the Review. Those of New-Orleans, the greatest of these marts, are contained in the November and December numbers of 1853.]

STATEMENT OF MANUFACTURED TOBACCO.

	Stock in factors' hands.	Receipts.	Stock for the year.	Sales.
January 1st, 1849.....packages..	23,000	46,000	69,000	60,000
" " 1850.....	9,000	50,000	59,000	47,000
" " 1851.....	12,000	51,000	63,000	50,000
" " 1852.....	13,000	70,000	83,000	61,000
" " 1853.....	22,000	94,000	116,000	81,000
" " 1354.....	35,000	—	—	—
Average for five years.....	18,200	62,500	78,000	59,800

Estimated as packages of ¾ boxes.

The following list exhibits the extreme prices of manufactured tobacco during the last year and at this date:—

Fancy Twist.....30 a 60c.	Fine 5's and 8's, lump...17 a 22c., unchanged.
" lb. lump .....40c. a $2.	Good " " ...14 a 16c., "
Extra " " .....25 a 35c., unchanged.	Common 5's and 8's..... 8 a 13c., "
Fine " " .....20 a 24c., "	" 16's, 18's & 20's.. 7 a 10c., "
Good " " .....14 a 19c. to 16 a 19c.	Ladies' Twist ..... 22 a 24c., "
Common lb. lump..... 7 a 12c., unchanged.	Spun 6's and 7's.....19 a 21c., "

The receipts were 24,000 packages *more* than during the previous year, and 32,500 packages more than the average for the past five years. The sales were 20,000 packages *more* than during the previous year, and 21,200 packages more than the average for the past five years.

The stock in factors' hands consists of two-thirds pounds and half-pound lumps, and one-third small lumps. A considerable part of the pound and half-pound lumps is *mouldy* or *sour;* in small lumps there is a less proportion. Much of the pound lumps was manufactured out of *high cost* leaf tobacco, for superior and extra grades, but *since sweating* does not open equal to those qualities, and must be sold under an *inferior* class.

The crop of leaf tobacco manufactured last year was undoubtedly of an inferior quality, being deficient in those properties necessary to secure its keeping in a sound condition, as the unusually large stock of *mouldy* and *sour* tobacco in factors' hands will abundantly prove.

Considerable importance is attached to the size of lumps, rendering it difficult to sell those weighing over seven or eight ounces. Pound lumps with *bright* wrappers continue in favor, and command the quickest sales. Until within a few years, but little of this description reached this market, which has now become the largest for its sale.

The past year has been very prolific in inventions of new sizes of manufactured tobacco, with variations in style of package; those we have classed under the head of Fancy Tobacco. *Twist* and other fancy sizes are generally neglected, but few have met with any approval, rendering it exceedingly difficult to dispose of such even at saving prices to the manufacturer.

It will be observed from the above table, that this branch of the tobacco trade has very largely *increased* during the past *three years.* The receipts and sales of the year just closed exhibit a much larger ratio of increase than any previous year; it is doubtless the result of well-assorted stock, with the new facilities for inland and coastwise distribution.

As a market for manufactured tobacco, Baltimore, if we regard the receipts, stands second; if we, however, look to the quality of the tobacco received here, it may be considered the first in the United States. Being the nearest market to the manufacturers, with every facility of transportation at the cheapest rates, the largest proportion of pound lumps of *fancy, extra* and *superior grades,* is shipped here, furnishing a *complete assortment* for the market, and offering *superior inducements to the Southern* and *Western trade.*

We would offer the following observations as having some bearing on the additional stocks of manufactured tobacco in factors' hands in the United States. The facilities for rapid communication and transportation by the magnetic telegraph, steamers and railroads, no longer render it necessary for dealers in the interior of the country to purchase so seldom, or in such large quantities as in former years, thereby leaving nearly the whole stock of the country in factors' hands in the principal marts; if this is not wholly true, it is one of those changes of trade that seem to us most consistent with the times, and it will before many years be realized to the fullest extent. Hence, in regard to prices, they should not be so much influenced by the present large stocks in factors' hands, and in connection with the large curtailment in manufacturing, we should expect a more stable condition of markets at the close of this year.

The stock of manufactured tobacco in factors' hands in the United States has increased for three years past; and now may be safely estimated at 135,000 packages—being 35,000 packages more than the previous year. The demand for California and Australia has subsided; the stocks in those markets are so large that few, if any, orders can be expected from those points during the current year.

The current prices of manufactured tobacco during the past year have not generally yielded a profit to the manufacturers. The experience derived from the year just closed, we hope will secure an adherence strictly to the prudent course adopted at

the commencement of this year, as we are confident it will exert a very favorable influence on the markets, and tend to secure sales at remunerating prices.

INSPECTIONS OF LEAF TOBACCO.

	Hhds.
Amount of Tobacco on hand in Baltimore, and on ship-board, January 1, 1853	11,759
Amount imported, 1853	48,667
Received for District of Columbia, not inspected here, but included in shipments.	600
	61,026
Shipments to foreign ports, 1853	49,142
" coastwise for home consumption, 1853	1,300
	50,442
Stock on hand January 1, 1854	10,584

The kinds inspected during the year 1853:—

	Hhds.
Maryland	29,248
Ohio	17,947
Kentucky	1,380
Virginia	78
Pennsylvania	14
	48,667

The shipments to foreign ports for 1853 are as follows:—

	Hhds.
To Bremen	18,702
" Rotterdam	10,395
" Amsterdam	9,980
" France	5,380
	44,457
To England	2,773
" Trieste	1,618
" Africa, West Indies, and other ports.	294
	49,142

TABLE OF LEAF TOBACCO INSPECTIONS IN BALTIMORE FOR THE LAST TEN YEARS.

YEARS.	Maryland.	Ohio.	Virginia and other kinds.	Total.
1844	32,249	15,464	1,224	48,957
1845	30,538	26,696	1,755	67,989
1846	41,416	29,626	754	71,896
1847	34,580	15,219	772	50,571
1848	23,491	9,702	703	33,906
1849	30,680	13,664	1,248	45,601
1850	27,085	13,965	783	41,833
1851	25,013	16,798	931	42,742
1852	29,569	17,720	1,043	48,332
1853	29,248	17,947	1,472	48,667
Average for 10 years	31,287	17,680	1,068	50,849

EXPORTS OF LEAF TOBACCO FROM THE PORT OF BALTIMORE FOR THE LAST TEN YEARS.

YEARS.	Bremen.	Rotterdam.	Amsterdam.	France.	All other places.	Total.
1844	17,139	11,861	7,095	7,212	1,594	44,904
1845	26,832	18,171	10,944	7,183	2,880	66,010
1846	24,404	9,498	6,181	6,341	3,037	49,491
1847	22,967	7,819	11,388	9,413	1,895	53,482
1848	12,787	7,910	3,403	4,959	134	38,890
1849	18,821	13,783	8,725	9,562	1,033	51,924
1850	15,864	7,814	5,973	8,177	6,540	44,368
1851	12,654	9,694	4,154	2,327	5,295	34,124
1852	22,860	11,473	5,067	7,679	5,278	52,357
1853	18,702	10,395	9,980	5,380	4,685	49,142
Average for 10 years	19,303	10,481	7,261	6,826	3,236	48,400

MARYLAND AND OHIO LEAF TOBACCO.—We present a table of the inspections at, and exports from Baltimore, for the year 1853. Also, a table of inspections and exports for the past ten years, with the average for the same period. The inspections of Maryland tobacco were 321 hhds. less than the previous

year. The maximum of this crop may be fixed at 30,000 hhds., but will seldom reach that quantity. The high prices of breadstuffs and labor are causes sufficient to check the production during the present year. The small stock at home and in foreign markets, with the prospect of diminished production, will most probably sustain present prices. Ohio tobacco has increased 227 hhds. over the inspection of the previous year. The maximum of this crop may be fixed at 18,000 hhds. Besides the same circumstances affecting this crop as well as the Maryland, there is one other well calculated to diminish its production; the planters are growing tobacco from foreign seeds, classed in trade under the head of "Spanish Seed Leaf Tobacco," which is packed in cases, and yields them better returns than the kinds shipped in hhds.

KENTUCKY LEAF TOBACCO.—There were inspected in our market the past year 493 hhds. more than the previous year. The premature announcement of the opening of the Baltimore and Ohio Railroad last year to Wheeling, with the delays attendant thereon, diverted much tobacco of this crop, intended for Baltimore, to other markets. We make the following extract from our last Annual Circular, as conveying all that is necessary to communicate under this head:—

"No efforts have been used to make this a market for Western tobacco, because the facilities for inland transportation to this market have been wanting. The opening of the Baltimore and Ohio Railroad to Wheeling, last month, at once presents the desired facilities for safe transportation, and must eventually divert the largest portion of this crop to this market. We call the particular attention of our friends in the West to the following facts and views, connected with the shipment of Western tobacco to this market, as worthy of more than casual attention. This is already an old-established tobacco market, occupying the second rank in the United States, having an annual inspection for the *planters* of the entire tobacco crops of two States, amounting to from 40,000 hhds. to 50,000 hhds. per annum, which are *exported directly* to foreign markets from this port. This shows a sufficient basis to make Baltimore the *largest* market in the United States; for the accomplishment of which but one step is necessary, a step greatly to the interest of the planters—that is, to place 10,000 to 20,000 hhds. in the market this year.

"Many long-established houses are engaged here exclusively in the purchase of leaf tobacco for foreign countries, and representing the largest tobacco houses in Europe. Orders received by these houses for Western tobacco are consequently sent to other markets, when the interest of the European purchaser would be promoted, if he were enabled to fill his orders for all

kinds of American tobacco in one market, and thereby save expenses.

"Planters and Western dealers will, we think, be induced to ship their tobacco to this market, when they remember that Baltimore is a market already established for leaf tobacco; that the cost of transportation is comparatively much less than to any other seaboard city; that we have the finest fire-proof public warehouses established here for the inspection, cooperage and storage, under the immediate superintendence and direction of State officers. The warehouse expenses are paid by the party who purchase the tobacco—no charge is made for storage until after twelve months.

"The tobacco suitable for cigars, which yields the planters the best profit, as well as other grades, undergoes generally a great deterioration in value by the influence of the climate at New-Orleans, as well as by shipment through the Gulf. This depreciation in value is oftentimes equal to the *inland cost* of transportation to this city. By the inland transportation it is not subject to deterioration, nor liable to other damage or waste, as by the river transportation to New-Orleans. All the various descriptions of tobacco in the Western crop will find a market here."

VIRGINIA LEAF TOBACCO.—The crop inspected last year amounts to 54,000 hhds., and is below an average if estimated in lbs., because many hhds. only weighed 500 lbs., and nearly every hhd. was below the average weight of former years. The crop was an inferior one, and was sold at extremely high prices. About 44,000 hhds. were taken for home manufacture, leaving but a small quantity for export. Although manufacturers will take much less tobacco during the current year, we do not think prices will vary much from those of last year. Causes that depress prices of other crops of tobacco in the United States, do not act so forcibly with this crop, as most of the planters are able, and invariably hold over their tobacco one or two years, rather than submit to much decline in prices.

STATEMENT OF LEAF TOBACCO.

	Hhds.		Hhds.
Stock of Leaf Tobacco in Europe, 1853	45,000	Consumption in Europe, 1854	125,000
" " " in U. States, 1853	55,631	Consumption of the U. States :—	
Total stock on hand	100,631	Maryland and Ohio 2,000 hhds.	
Estimate for 1853 :—		Virginia 38,000 "	
Maryland and Ohio 42,000 hhds.		Kentucky 20,000 "	
Virginia 45,000 "			60,000
Kentucky and all others 75,000 "			185,000
	162,000		
	262,631	Stock in Europe and U. States, in 1855.	77,630

There remains in the United States, Great Britain and on the Continent, about 100,631 hhds. of American tobacco—showing

about the same stock in Europe as at the same date last year. We also present an estimate of the stock, consumption and production for the year, from which there will be probably on hand at the close of this year in Europe and the United States, 77,630 hhds.

Statement of the Production, Exports and Consumption of Tobacco in the United States, not including the consumption of Foreign Tobacco.

1840.		1850.	
U. States growth of Tobacco....	219,163,319 lbs.	U. States growth of Tobacco...	199,532,494 lbs.
Exports :—		Exports :—	
Leaf.....	177,393,600	Leaf.....	115,134,000
Manufactured.....	7,503,644	Manufactured.....	7,235,358
Snuff.....	68,553	Snuff.....	37,442
Total exports.....	184,965,797 lbs	Total exports.....	122,406,780 lbs.
United States consumption.....	34,543,557	United States consumption....	81,933,571
U. S. consumption per head.....	2 lbs. ½ oz.	U. S. consumption per head..	3 lbs. 8 oz.

Statement exhibiting the number of Hhds. of Tobacco exported from the United States from 1839 to 1852 inclusive, and the average price per pound and gross value. Also, the number of pounds of Manufactured Tobacco and Snuff gross exported in the same period.

YEARS.	No. hhds. Leaf Tobacco.	Average price per l.b.	Total value.	Manufactured Tobacco. Lbs.	Snuff.	Value of Manufact'd Tobacco and Snuff.
1839	78,995	10¾	9,832,943	4,214,943	42,467	616,211
1840	119,484	6¾	9,883,657	6,787,165	37,132	813,672
1841	147,828	7	12,576,703	7,503,644	68,553	873,877
1842	158,710	4½	9,540,755	4,434,214	42,668	525,490
1843	94,454	4½	4,650 979	3,404,252	20,455	278,819
1844	163,042	4⅝	8,397,255	6,046,878	28,668	536,600
1845	147,168	4¾	7,469,819	5,312,971	44,399	538,498
1846	147,998	4¾	8,478,270	6,854,856	52,458	695,914
1847	135,762	4¾	7,342,086	7,844,592	37,051	658,950
1848	136,665	4¾	7,551,122	6,698,507	36,193	568,435
1849	101,521	4¾	5,840,247	7,159,397	49,888	613,044
1850	145,729	5⅝	9,951,013	5,918,583	44,690	648,832
1851	95,945	8	9,219,251	7,235,358	37,422	1,143,547
1852	137,097	6	10,031,283	8,436,253	58,475	1,317,622

The above statements are made from the returns to the Government, and will serve for future reference.

It is proper, in conclusion, that we should call attention to the present state of the European world and the necessity of inquiring into the probable condition of the Hungarian and other continental crops, should the Eastern question not be speedily settled. Unless the present active and energetic measures adopted by the English and French governments should arrest the progress of the Russian autocrat, and induce him to withdraw his unfounded pretensions and his unwarrantable interference with the Ottoman Empire, under the specious pretence of protecting the Greek Church, it is manifest that a general war must ensue. Austria cannot remain quiet. Her Hungarian subjects will take advantage of the dangerous position of Russia to renew their efforts at freedom. Silesia will recall the days of Frederick II., and it would not be strange if Poland should join the opponents of Russia. In this state of the continent, but little time

or attention will be given to the production of Turkish, Hungarian, or other continental crops of tobacco; and the demand, therefore, for our own tobacco, so far as it can supply the foreign crops, will necessarily be increased, and the prices must rise. A few weeks, however, will determine this result, and it is probably too curious to inquire how far the interest of every one of our correspondents is connected with the next note that may emanate from the pen of Count Nesselrode, or the next resolve that may enter the brain of the autocrat of all the Russias! Whatever may be the future action of the belligerents, it cannot be doubted that even the present hostilities will materially affect the crops and productions of the countries that now form the seat of war, and our correspondents should bear this in mind in their operations.

Art. VIII.—COTTON.

CHRONOLOGICAL SUMMARY OF THE GROWTH AND TRADE IN COTTON, AND OF IMPORTANT INVENTIONS AND IMPROVEMENTS IN ITS MANUFACTURE.

B. C.

440, or about that time, first mention of cotton in history by Herodotus.

63. Cotton awnings first used in the theatre at Rome, by Lentullus Spinther.

A. D.

50. Cotton plant extensively known in Egypt and some of the adjacent countries.

800. Cotton used in Greece in the manufacture of paper.

1252. Cotton goods made in Persia.

1280. Manufacture of cotton introduced into China from India.

1298. Cotton used in England for candle-wick.

1368. Cotton used extensively in China.

1430. Fustians first made in Flanders, with a linen warp and cotton weft.

1500. First attempt to introduce cotton goods into England.

1516. The Caffres, in Southern Africa, wore cotton dresses.

1530. The common spinning wheel invented by Jurgen, at Brunswick, in Germany.

1560. Cotton imported into England from the Levant.

1565. First act of British parliament relating to cotton goods.

1582. A mercantile commission sent from England to Constantinople and other parts of Turkey, to learn any secrets in the arts of manufacturing, dyeing, &c.

1589. The stocking frame invented by William Lee.

1590. Cotton cloth brought to London, from Benin, on the coast of Guinea.
1631. Printed calicoes first introduced into London, from India.
1641. Cotton wool imported into England exclusively from the Levant. At this period, all warps were made with linen, and wove with cotton imported from Cyprus and Smyrna.
1644–50. Conquest of China by the Tartars; manufacture of cotton greatly increased in that empire.
1650. Very fine calicoes and muslins made at Calicut, in India, which were whitened with lemon-water.
" Fustians and dimities first introduced into England.
1670. The Dutch loom first used in England.
1676. Calico printing commenced in London. Introduced into England the year before.
1677. Value of India calicoes consumed in England, £160,000.
1688. 450,000 lbs. raw cotton, and 1,450,000 lbs. of yarn, imported into France from the Levant.
1698. First steam engine constructed and turned to useful purposes, by Savery.
1700. Manufacture of muslins first attempted at Paisley, Scotland.
1701. Value of cotton goods exported from England, £23,000.
1725. Lawns and cambrics first manufactured at Glasgow—James Monteith being the first manufacturer who warped a muslin web in Scotland.
1733. First cotton yarn spun by machinery in England, by Mr. Wyatt.
1734. The Trustees of Georgia were presented with a paper of cotton seed, by Philip Miller, of Chelsea, England.
1735. The Dutch first export cotton from Surinam.
1738. Lewis Paul first took out a patent for a machine for spinning with rollers, invented by John Wyatt.
" The fly shuttle invented by John Kay, of Bury, England.
1742. The first mill for spinning cotton in England, erected at Birmingham. It was moved by asses, was unsuccessful, and the machinery was sold in 1743.
1750. The fly shuttle in general use.
" 3,831,620 lbs. of raw cotton, and 3,381,625 lbs. yarn, imported into France from the Levant.
1753. A cotton reel invented by Mr. Earnshaw.
1756. Cotton velvets and quiltings first made in England.
1760. Warping mill invented. Drop shuttle box invented by Robert Kay. Value of cotton manufactures in Great Britain at this period, £200,000 per annum.

1760. James Hargreaves applied the stock-card to the carding of cotton, with some improvements.
1762. Cylinder cards invented.
1763. Bleaching by the old methods generally introduced in England.
1765. The manufacture of calicoes first attempted in England. Cotton velvets first made at Amiens, in France.
1766. Value of cotton goods made in England, £600,000 per annum.
1767. The spinning jenny invented by James Hargreaves.
1768. The stocking frame applied to the making of lace, by Hammond.
1769. Mr. Arkwright, afterwards Sir Richard Arkwright, obtained his first patent for spinning cotton with rollers, and built his first mill at Nottingham. This was driven by horse-power, which proving too expensive, he and his partners built another mill at Cromford in Derbyshire, which was turned by water—hence his spinning machine was called the *water-frame*.
1772. First cotton goods made in England with cotton warps.
" Messrs. Arkwright & Co. successfully attempted the manufacture of calicoes.
1774. Chlorine, or oxymuriatic acid, discovered by Scheele, a Swedish chemist.
1775. The first Provincial Congress of South Carolina recommend to the inhabitants to raise cotton.
1777. Green dye for calicoes introduced by Dr. R. Williams.
1779. Cayenne, Surinam, Essequibo, Demerara, and St. Domingo cotton most in esteem in England.
" The mule for spinning cotton invented by Samuel Crompton.
1780. First cotton mill built in Ireland. In 1824 Ireland had 145,000 spindles.
1781. Brazil cotton first imported from Maranham into England.
1782. A panic created in the cotton market of Manchester, England, in consequence of 7,012 bales of cotton being imported between December and April.
" James Watt obtained his patent for the steam engine. It had come into extensive use, to move machinery, in 1790.
" Some American manufactures of cottons first advertised for sale in Philadelphia.
1783. Surat and Bourbon cotton first imported into England about this time.
" Arkwright's machinery for carding and spinning cotton by steam, first used in Manchester, England.

1784. Arkwright's first patent expired, and a great impulse given to the manufacture of cotton.
" The cotton manufactured in Great Britain this year was 11,280,238 lbs., and valued at £3,950,000.
" Cotton imported into England, in small quantities, from the United States.
" First machine for spinning cotton imported into France, from England, by M. Morin, of Amiens.
1785. Power looms invented by Dr. Cartwright.
" Cylinder printing on cloths, invented by Bell, and much improved by Lockett.
" Bleaching first performed with oxymuriatic acid, by Bertholett, in France.
1786. The discovery of bleaching with oxymuriatic acid introduced into Great Britain, by James Watt.
" Mr. Orr, of East Bridgewater, Mass., employed R. and A. Barr, from Scotland, to construct carding, spinning, and roving machines; and the Legislature of Massachusetts, to encourage the machinists, granted them 200 pounds, lawful money.
1787. Thos. Somers, an English midshipman, constructed a model of a spinning jenny in Mass., for which the State government granted him £20. These were the first machines constructed in the United States.
" First machinery to spin cotton put into operation in France.
" 108 bales of cotton imported into England from the United States.
" The first cotton factory in the United States was organized this year, at Beverly Mass., and continued in operation about 15 years, making corduroys, bed-tickings, and cotton velvets. General Washington visited this establishment in 1789.
1789. A mule jenny constructed at Amiens, in France, with 280 spindles.
" Sea island cotton first planted in the U. S., and upland cotton began about this time to be raised for use and exportation.
" Samuel Slater arrived in the United States in November.
1790. December 20th, Samuel Slater started the first machinery for spinning cotton in the United States, at Pawtucket, R. I., constructed on Arkwright's plan. October 15th, 1791, specimens of his first yarn and cloth were sent to the Secretary of the U. S. Treasury.
" First calico printing in the United States commenced with wooden types by Herman Vandausen, a German at East Greenwich, R. I.

1791. A society of wealthy individuals, under the auspices of Alexander Hamilton, were incorporated by the legislature of New-Jersey, for the purpose of "*establishing useful manufactures.*" In May, 1792, the manufacturing town of Paterson, N. J., founded by this company. In 1794, their first cotton mill completed, under the superintendence of Peter Colt, Esq., and calico shawls and other cotton goods were printed there. In 1796, the company suspended their manufacturing operations. In 1814, the company revived and manufactures greatly extended there, by Roswell L. Colt, Esq. In 1822, Mr. John Colt commenced at this place the manufacture of *cotton duck*, with doubled and twisted yarn, without dressing or any kind of sizing.

1792. A self-acting mule invented by Mr. Kelly, of Lanark Mills, Scotland.

1793. The saw-gin for cleaning cotton invented by Eli Whitney, in the United States. His patent dated March 14th, 1794.

" Exportation of cotton from the United States to Great Britain begins to be important.

1797. Amos Whittemore, of Cambridge, Mass., invented his machine for cutting, bending, and setting card teeth.

1798. Tennant's bleaching powders invented, by Mr. Tennant, of Glasgow.

" First cotton mill, with machinery, built in Switzerland.

1799. First cotton-spinning machinery erected in Saxony.

1800. The jacquard, a most ingenious mechanism, to be adapted to a loom for weaving figured goods, invented by M. Jacquart, of Lyons, France. It may be adapted to any common loom, at an expense of about $40.

1800 or 1801. The entire stock of American cotton in Liverpool, *one bag.*

1801. Discharge work in calico printing successfully adopted by Messrs. Peel.

1803. First cotton factory built in New-Hampshire.

1805. Power looms widely and successfully introduced into England, after many failures.

" Engraved wooden rollers, used for printing cotton; invented by Barton.

1806. Machine for dressing warps invented by Mr. Johnson, who was then in the employment of Messrs. Radcliff & Ross.

1807. New markets for cotton manufactures opened by the revolutions in Spanish America.

1808. New method of engraving or stamping with dies the cylinders for printing cloth, introduced at Manchester, by

Locket. This method of engraving by means of steel dies was invented by Jacob Perkins, an American.

1808. William Mason, a skilful artist and inventor of machinery, born at Mystic, Conn.

1809. The first cotton factory in New-York, built by Doct. Capron, in Oneida county.

" The first power loom invented and patented in the United States by P. C. Curtis, of Oneida county, N. Y.

" Lace machinery much improved by Heathcott.

" British parliament granted Dr. Cartwright £10,000 for his invention of the power loom in 1787.

1810. Public attention drawn to the growing importance of cotton manufactures in the United States by Hon. Albert Gallatin and Tench Coxe, Esq.

1811. Machinery for making bobbin-net patented by John Burn, of England.

" Turkey red first introduced into calico printing by M. Koechlin, at Mulhausan.

1813. Discharging Turkey red with acid, in calico printing, patented by Jas. Thompson, F. R. S.

" Mr. Metcalfe, from America, sent to India with machines for improved cleaning of cotton.

" The first manufacturing establishment in the world combining all the operations necessary for converting the raw cotton into finished cloth, erected at Waltham, Mass., by Francis Cabot Lowell and Patrick Tracy Jackson, assisted by Mr. Paul Moody, an eminent machinist. The exportation of manufacturing machinery from England being prohibited by law, they contrived their own power looms.

1815. 8 lbs. cotton yarn sent from England to India on trial.

1816. Yarn trade opened between England and the continent.

" The first act of Congress passed having special regard to the growth and protection of manufactures in the United States. (The tariff of 1816.)

" Cotton consumed by the manufactories in the United States about 11,000,000 lbs. per annum.

1817. Francis Cabot Lowell died, *æt.* 43 years.

1818. Cotton averaged about 34 cents per pound—the highest of any year in the U. S. since 1801.

1819. New cotton lands sold very high in the United States.

1820. Steam power first applied with success to lace machinery.

" The first cotton mill erected in Manayunk, Pennsylvania, by Capt. John Towers.

1821. The site of the manufacturing city of Lowell purchased by Patrick T. Jackson, Esq., on the suggestion of Mr. Ezra Worthen. On the 9th February, 1822, the

Merrimack Manufacturing Company was incorporated. Same year the foundation of the first factory at Lowell was laid, under the agency of Kirk Boot, Esq.; and in November, 1823, the first cloth was produced under the superintendency of Ezra Worthen.

1823. The counter-twist, or Taunton speeder, invented by George Danforth, of Taunton, Mass.

" The first export of raw cotton from Egypt to England.

1824. Ezra Worthen died, June 18th.

1825. First calico printing machine imported from England to the United States, by William J. Breed, of Providence, R. I.

" A self-acting mule spinner patented in England by Roberts. The tube frame introduced there from the United States.

1826. First exports of American cotton manufactures to any considerable amount.

1828. Charles Danforth, a native of Bristol Co., Mass., invents the cap spinner, or Danforth frame, patented in England in 1830, and there known as "The American Throstle."

1831. July 7. Paul Moody, an able inventor and improver of cotton machinery, died, aged 54.

1832. An important improvement in machinery for preparing cotton for the cards, called the Picker and Lapper, patented by John C. Whitin, of Mass.

1835. The number of factories, this year, in Great Britain and Ireland, were 1,263 at work, 42 idle.

1837. April 11. Mr. Kirk Boot died at Lowell, Mass.

1839. William Mason invented his self-acting mule. Took out a patent for improvements therein in 1843.

1841. American cotton planters employed by the British Government of India, for the improvement of cotton growing, arrive in that country.

1842. Power loom for weaving ginghams and checks invented by E. B. Bigelow, of Massachusetts.

1845. March 22. Duty on cotton repealed in England.

1846. England exported 157,130,025 lbs. of cotton yarn, valued at £8,133,772.

1847. Sept. 12. Patrick T. Jackson, founder of Lowell, died at Beverly, Mass., *æt.* 68.

1848. Cotton consumed by manufactories in the United States about 254,843,400 pounds per annum.

" Power looms introduced into Tuscany about this time by F. Padredii, of Pisa.

1851. Great Exhibition in London of the works of industry of all nations.

Art. IX.—GREAT CITIES OF THE WEST—BUFFALO.

No. II.

THE population of the city is now put down at 75 or 80,000; and from tables prepared by the Equalizing Committee of the Board of Supervisors, the following facts are gathered relative to this new city—its extent and its valuation. The number of acres admitted within the city limits by the annexation of Black Rock is 23,710. The number of acres within the old city limits is not given; but it is believed it is not far from 1,800. The Assessors' valuation of real estate in the new city is $20,063,045, of which Black Rock furnishes $3,362,105. The valuation of this property, as it is equalized by the Committee, is set down at $24,681,497, of which Black Rock has $3,205,912. The value of the personal estate is estimated at $2,774,255; of which Black Rock has $75,600. The total amount of real and personal estate, as equalized, is fixed at $27,455,752; of which Black Rock is rated $3,281,512. Some idea of the increasing prosperity of this city, and its resources yet undeveloped, may be gathered from the above statistics, which are compiled from official tables.

Strangers, and even many of its own citizens, would be surprised to see the numerous works of improvement going on, and that have been completed during the past year. Large numbers of sewers have been laid, and numerous streets graded and paved. The paving which has been done has been of a superior character, and will prove of great advantage to the city. There has also been a large amount of flagging and plank-walks constructed on the outer streets, and gas and water pipes have been laid down in almost every direction. As for building, a year is not remembered when so many elegant structures for business and family occupation have been erected as the past. A destructive fire which occurred early in the summer, swept away a large number of wooden buildings in that portion of the city lying between the Canal and the Creek, known as the "infected district." This part of the city is wanted for business purposes, and is now being rapidly built up with substantial brick stores and dwellings. Large blocks, depots, hotels, warehouses, and stores, are going up in every direction on the Creek, Canal, and on almost every street. The old Market-house and City-Hall, on what is termed the Terrace, have fallen victims to the spirit of improvement, and have been torn down. In lieu of these edifices, the Common Council have purchased a lot three hundred and forty-seven feet square, on Franklin and Eagle Streets.

Its entire cost was $80,000. City buildings are already located upon the premises, the structures of which, though not designed as permanent, are very creditable to the taste of the projectors. A large and convenient City-Hall will be erected on the grounds at no distant day. A new and commodious public market building has been erected, during the year, on Michigan Street; and some $50,000 has also been appropriated for the purchase of two other locations, on which are to be erected public markets. Many residences of a superior order as to elegance and commodiousness, are going up on every hand. That portion of the city lying in rear of the Water Works, which but some two or three years since was scarcely occupied for residences, is being rapidly spread over with snug little cottages, erected by day laborers and artisans. Land in that portion of the city has risen rapidly in value within the past year. It is another evidence of the increasing prosperity and speedy growth of the city. Nor is this destined to be an ephemeral thrift. Some three hundred dwellings will be built in that neighborhood during the coming summer, by mechanics who have bought the land on which they are to be erected at low rates, and intend to make them their homes. The same may be said of other outskirts of the city. At the Hydraulics, on the flats, and, in fact, throughout the city everywhere, permanent improvements are going on. This, of course, will add very materially to the value of real estate, and advance the growth of the city in every direction.

The harbor of Buffalo, which is perfectly easy of access in all weathers, is very far from being adequate to the commerce of the place, and is often so much obstructed by small craft and canal boats, especially when forced in suddenly by stress of weather, that ingress or egress is a matter not easily or readily effected. This has been the case more particularly during the past season, owing to the large increase in the Lake marine, and the fact of so many large steamers entering the harbor daily. To relieve this pressure in part, a slip canal has been cut during the past summer, connecting the Creek with the Ship Canal. More than this, however, is required, to meet the demands of the large and daily increasing business of the port.

GENERAL STATE OF TRADE.

The business on the docks, by which is meant the buying and selling of produce, opened in spring somewhat languidly, owing to a combination of unpropitious circumstances. The unfavorable state of the market in England, in the early part of the spring, and which continued into the summer, served to depress the market for breadstuffs; while the confidence of holders, strengthened by a belief in the scantiness of the supply, mate-

rially checked operations. Navigation upon the lakes was unobstructed at an early date, some two weeks prior to the opening of the canal; but the receipts during that time were not large. After the 20th April, the day upon which business was resumed on the canal, a series of interruptions occurred, owing to the breaks in the works, and freights in consequence ruled high and irregular. Rival routes on every side were competing for the trade, which legitimately belonged to the canals of New-York. The Welland and Oswego Canals, and the Ogdensburgh and Cape Vincent Rail-roads on the one side, and the New-York and Erie Rail-road and the Southern routes on the other, were exerting all their energies to draw trade from the Erie Canal; and they were in a great measure successful, owing to the almost incessant interruption on the western division of the canal. One break was scarcely announced before information of another was received; and, despite the energy and enterprise of forwarders, the increase of boats, and the efforts of the business community, a paralysis appeared to have stricken this vast limb of commerce, and to have laid upon it suddenly, in all its vigor, the infirmities of a premature old age. The mischief entailed upon all classes by these untoward events can scarcely be calculated. The producer of the West, the commission merchant in the interior, the forwarder and the exporter were all sufferers, and Buffalo and the State were more injured than any class of individuals. All these circumstances combined served to check business on the docks, and an unnatural dullness existed. Such a state of things, however, there is good reason to believe, will not occur again. The canals have fallen into the management of other hands, men who profess at least to be their friends; and, from present appearances, if we can judge from what has already been done towards the enlargement, we may safely count upon the speedy completion of these great State works, and that during the coming season they will be kept in perfect order. From the commencement of navigation up to June, prices ruled considerably higher than for the same period during the year previous, say from 25c. to 50c. per bbl. on flour, 15c. to 20c. per bush. on wheat, and 4c. to 6c. per bush. on corn. There was every disposition on the part of speculators to operate, but the unsettled condition of freights consequent on the frequent interruptions of canal navigation kept them out of the market. After the close of the month of May, interruptions were less frequent, and a better condition of affairs was apparent, with a revival in the market.

Buffalo, as a market for the disposal of every description of produce, offers better inducements to Western merchants than any other port on the lakes. It is a fact that prices of flour and grain have ruled comparatively higher in the Buffalo market

throughout the entire season than in New-York. By this we mean that if we take, for instance, the price of a barrel of flour at Buffalo, or of a bushel of wheat or corn, and add to it the freight by canal or railroad, insurance, commissions, and other incidental expenses, the margin will be found in favor of the Buffalo market. Holders who have disposed of their consignments there, have, as a general thing, done better than those who have shipped, and instances have very frequently occurred where a consignment of flour has been received there, perhaps half has been forwarded to New-York, and the balance retained at Buffalo—both parcels have been sold on or about the same day; that sold at the latter place has netted a fair profit, while that shipped to New-York has barely paid expenses. In the fall, holders of flour and grain, who shipped from the West through to New-York, have done better than they would have had they sold at Buffalo as soon as the property arrived; but had they held this property there for the same length of time that elapsed in its reaching its destination, and until it was sold, the profits realized would have been far larger. These are facts beyond dispute, as the figures of the daily markets of both cities will show. The question may be asked, How comes this? One great cause which may be assigned as a reason for this state of things is, that a greater extent of country, with a large consumptive demand, looks to Buffalo for its supplies than to any other market west of New-York. The demand for the interior of the State of New-York, as well as for the New-England States, is large, and there is always either a good home or speculative demand for all descriptions of produce.

One reason which may be assigned for the high prices which ruled throughout the spring is, that during last winter purchases were made, to a considerable extent, of flour and grain, at the high rates that then prevailed, with the expectation that there would be a large foreign demand, and that prices would consequently open high in the spring. Such, however, was not the case, and the prices then paid have not been warranted by the figures obtained in the New-York market. It is also well known, that before the new harvest came in, the stock of grain at the upper lake ports was much reduced, and the arrivals from the interior were barely sufficient to keep the mills in operation. Lake freights were consequently scarce, and to obtain which vessel owners were compelled to purchase cargoes to freight their vessels at figures which not only paid them no freight, but which it was with difficulty could be obtained at Buffalo.

LAKE IMPORTS FOR 1853.

The following table will show the quantity and value of the principal articles received by lake at this port during the season of 1853:—

ARTICLES.	Quantity.	Value.
Flour, bbls	983,837	$6,594,940
Pork	102,548	1,031,573
Beef	69,776	697,760
Ashes	11,553	288,825
Whisky	66,707	667,070
Seeds	37,018	370,180
Eggs	11,000	110,000
Fish	7,731	61,848
Cranberries	1,096	13,152
Oil	7,965	238,950
Meal	311	1,244
Tongues	130	1,300
Nuts	1,548	7,740
Beans	1,151	4,028
Hides, No	98,009	284,027
Leather, rolls	7,991	199,775
Broom Corn, bales	4,963	59,556
Buffalo Robes	631	31,550
Copper, tons	1,068	504,000
Coal	38,188	190,140
Iron	4,731	165,585
Lead, pigs	36,004	108,012
Wheat, bush	5,424,043	6,671,672
Corn	3,665,793	2,199,475
Oats	1,480,665	508,252
Barley	401,098	248,082
Rye	107,152	80,454
Butter, lbs	6,589,784	988,467
Cheese	5,377,800	430,224
Lard	8,185,500	818,550
Tallow	762,810	91,537
Bacon	23,075,645	1,846,051
Tobacco, hhds	2,038	142,532
Tobacco, boxes	5,030	126,250
Wool, bales	45,830	$3,668,800
Flax	520	7,800
Hemp	1,977	40,425
Pelts	5,288	132,200
Furs, packages	1,095	198,925
Lumber, feet	89,294,789	1,339,421
Staves, No	9,215,240	276,457
Shingles, M	3,542,642	10,629
Lath M	2,058,920	4,117
Feathers, sacks	1,556	13,995
Horses, No	1,531	153,000
Cattle	20,466	1,227,960
Sheep	23,223	69,660
Live Hogs	114,952	1,149,520
Dressed Hogs	5,178	78,660
Rags, bags	3,416	17,080
Paper, bdls	11,040	220,800
Hair, packages	38	232
Wax, bbls	213	6,390
Deer Skins, pkgs	3,837	191,850
Soap, boxes	128	512
Starch, bbls	591	5,319
" boxes	2,158	5,316
Candles, boxes	2,835	28,350
Sugar, hhds	185	18,500
Ties, No	11,682	4,400
Beans, bbls	1,172	3,516
Sundries, packages	—	3,500,000
Total value		$36,881,230
" " 1852		34,943,855
Increase in favor of 1853		$1,937,375

The following table shows the principal articles landed at Buffalo, fromthe opening to the close of navigation, for three seasons:—

ARTICLES.	1851.	1852.	1853.
Flour, bbls	1,261,301	1,299,513	983,837
Pork	33,261	60,669	102,548
Beef	70,570	76,679	69,776
Whisky	65,232	79,306	66,707
Cornmeal	2,287	5,090	311
Seed	11,146	31,559	37,018
Eggs	12,818	7,686	11,000
Fish	6,267	6,814	7,773
Oil	6,718	7,577	7,965
Cranberries	1,500	1,176	1,096
Nuts	—	2,573	1,548
Ashes, bbls	13,721	14,522	11,558
Wheat, bush	4,260,064	5,549,778	5,424,043
Corn	6,080,330	5,136,746	3,665,793
Oats	1,149,783	2,596,231	1,480,655
Rye	19,435	112,271	107,152
Barley	166,188	497,913	401,098
Butter, lbs	2,354,277	3,989,917	6,589,784
Lard	4,961,240	7,164,672	8,185,300
Tallow	728,100	1,014,086	762,810
Bacon	6,541,400	9,696,590	23,075,645
Wool, bales	61,823	45,172	45,830
Hemp	2,139	3,597	1,977
Flax	375	780	520
Broom Corn	5,402	5,420	4,963
Buffalo Robes	3,246	80	631
Feathers	—	2,285	1,556
Pelts	—	3,296	5,288
Furs, bls & bxs	—	2,909	1,095
Leather, rolls	8,628	7,155	7,991
Hides, No	50,865	95,452	98,008
Copper, tons	655	439	1,068
Iron	2,542	4,848	4,731
Coal	17,281	34,665	38,188
Lead, pigs	26,983	31,916	36,004
Tobacco, hhds	1,707	6,620	2,038
Tobacco, bxs	—	7,799	5,030
Lumber, feet	84,068,589	72,337,255	89,294,789
Shingles, M	—	13,532,000	3,542,642
Lath	—	1,500,000	2,058,920
Staves, No	10,696,000	12,998,614	9,215,240
Horses	2,761	1,643	1,532
Cattle	8,594	15,926	20,466
Sheep	18,906	16,590	23,223
Live Hogs	97,697	111,223	114,952

The total value of the imports for the year 1853, as appears by our figures, is $36,881,230. We have for years back been able to obtain from the Custom House the imports by lake, and their value. This year, however, these tables have not been kept by the collector or his clerks, and we are, therefore, obliged to resort to the tables, which have been published daily, of the

receipts for the year, and make out the valuation of the same, with the assistance of those who are acquainted with the prices of the different articles. We are satisfied, however, that our figures, as we give them above, are far more correct than if we were to rely on the tables which might be got up by the collector or his deputies from the manifests reported to them. It is well known that many vessels during the season arrive in port, discharge their cargo, and reload and leave port without ever reporting at the Custom House. Several of the steamers which have been engaged in the stock-trade during the past season frequently arrived in port after the Custom House had been closed. Their load was principally cattle and hogs. They are usually unloaded in a very short time, and leave port again for another load before the office opens in the morning. Such instances were of almost daily occurrence during the past summer. The reporters for the press were generally on hand, and obtained copies of their manifests, while the Custom House did not. Again, propellers which have cleared from some upper lake port for Buffalo, say Tonawanda, and it has occurred almost daily, have touched at the former place, and unloaded perhaps 1,000 barrels of flour, or 500 barrels of pork or other articles of produce, and have gone on to their destination with the remainder of their cargo without reporting there. In such cases, the vessel is not required to report to the Buffalo Custom House, and therefore no minute is kept of it unless some reporter get it. There is another reason why full receipts are not obtained at Buffalo, and that is, that vessels, on leaving the port, say of Chicago, obtain a clearance specifying their cargo, they come on to Kenosha or Milwaukie, and receive additions to their cargoes, which is not always noted in the manifest. From these facts and others, we are inclined to believe that our figures, as recorded during the season of the imports, are under their actual value.

It will also be seen, by reference to our tables under the head of Railroads, that the Buffalo and State Line Railroad carried to the city of Buffalo, during the year ending December 31, 1853, a large amount of produce, which, according to our figures, is valued at $2,234,273. This, added to the imports by lake, would make the total imports of Buffalo from the West, for the past year, $39,115,503, or an increase over 1852 of over $5,000,000; and if we add to the imports from the West, the imports by canal and railroads from the East, it will show a commerce of over *one hundred and twenty-five million dollars!* In the above, no estimate has been made of the value of the many tons of valuable goods and specie, transported by the express companies over the railroads, and on board the steamers, or of the enormous passenger trade of these lines. Were it

possible to arrive at the value of such commerce, it would undoubtedly swell the aggregate amount of trade by many millions of dollars.

The amount of specie on deposit in the Custom House in Buffalo, on the 31st of December, 1853, and subject to draft, was $33,532 50.

The amount paid out by the collector of the port during the past year, to destitute and indigent sailors, was $3,235 23, and the amount collected in the district during the same period for that fund was $1,317 44. The deficit, $1,917 79, is made up by drafts on the fund appropriated by Congress for the relief of sailors.

The following table shows the entrances and clearances at that port of foreign and American vessels, together with their tonnage and crews, during the year 1853 :—

Arrived.	No.	Tons.	Men.	Boys.
American vessels from Foreign ports	132	24,235.36	1,047	45
Foreign " " "	735	116,235.93	5,714	360
Total	867	140,471.29	6,761	405
Cleared.				
American vessels to foreign ports	152	29,629.66	1,278	53
Foreign " " "	735	116,266.49	6,722	358
Total	887	145,896.15	8,000	411
Coasting Trade.				
Inwards	3,239	1,491,604.60	50,917	1,179
Outwards	3,305	1,475,006.22	52,434	1,158
Total	6,544	2,966,610.82	103,351	2,337
Grand Total, 1853	8,298	3,252,978 26	128,112	3,153
" 1852	9,441	3,092,247 73	127,491	5,215
" 1851	9,050	3,087,533 80	120,542	5,251
" 1850	8,444	2,743,700.86	125,672	—

LAKE MARINE—SHIP-BUILDING.

It is not to the ocean alone that the contest for maritime superiority is to be confined. There is another vast race-course, as it is termed, upon which the struggle will be as exciting and quite as warmly contested as that which now attracts the attention of the civilized world on both sides of the Atlantic. We mean our great Northwestern Lakes.

The history of our lake marine, could it be written out in full, would be a subject of interesting study. It would present a series of triumphs in naval architecture, quite as important to the States bordering on the lakes, quite as clearly defined and as legitimately gained by the aid of nautical skill and of keen observation, united to a wise application of scientific principles, as those which have occurred along the greater extent of our national seaboard.

At the present time this subject addresses itself to the whole country connected with the commerce of the lakes with great emphasis, for the reason that the rapidly developing condition of our Western States requires an equally rapid increase of the facilities for transporting to market their annually augmented products. Whatever adds to the efficiency of our lake marine, to its sailing qualities, to the safety with which it bears its treasures over these waters, to the cheapness with which it can transport the products of our soil, our mines, our forests and manufactories, is so much added to the actual wealth of the country, to its industrial energy, and its ultimate supremacy in all the elements of power.

Buffalo, from the unsurpassed advantages offered by superiority of location, naturally takes the lead of any other lake city in this important branch of industry. The ship-yards of the city have already sent forth upon the Western waters steamers which must elicit the wonder and admiration of the world. Steamboats, propellers, and every class of sailing vessels can be built there with greater advantage to the owner in the important item of economy, and at the same time superior to all others in quality and model. The timber used is procured from Canada, and from different locations bordering on Lake Erie, and is upon the whole better than that used at many points on the upper lakes; and again, the important item of iron, which enters largely into the construction of vessels, can be laid down there at a much lower figure than at any other point on the lakes.

Buffalo is well supplied with machine-shops and furnaces, and machinery can be made in that city as cheap as elsewhere; and considering the great expense of transportation, chiefly by railroad in winter, and the disadvantages from having the hull and engine built at so great a distance from each other, perhaps cheaper. Connected with one of the yards in the city, there is a dry-dock of sufficient capacity to admit a steamer of over 2,500 tons, and three hundred and fifty feet in length, with marine railway to facilitate the hauling out and repairing of vessels. There is also near this yard a large Derrick for the handling of boilers and heavy machinery. These and other facilities possessed by Buffalo, give to her the preference as a ship-building city, and to these facts may be attributed the reason she has turned out the large amount of tonnage noted below during the past year, and what is now on the stocks, a great portion of which is building for parties residing in other lake cities.

The following is a list of the steamers, propellers, and sail vessels—their tonnage, and by whom built, at that port during the year 1853:—

Steamers.	Builders.	Tons.
Queen of the West,	Bidwell & Banta	1,851.30
Crescent City	" "	1,746.12
Garden City	" "	657.31
Mississippi	Jones & Co.,	1,827.12
St. Lawrence	"	1,844.39
Total Steamers		7,926.24
Propellers.		
Northern Michigan,	Bidwell & Banta,	359.25
Jefferson	" "	344.63
Portsmouth	" "	525.57
Young America	" "	359.49
Charter	" "	241.86
International	" "	473.89
Iowa	" "	941.53
Tug	" "	115.30
Dayton	Weeks,	366.50
Louisville	"	366.02
Cincinnati	"	366.02
Kentucky	"	366.02
Brunswick	"	512.20
Chapman	Chapman,	77.38
Underwriter	Lavaydea,	107.44
Propellers.	Builders.	Tons.
P. L. Barton	Lavaydea,	40.30
A. S. Fields	"	115.22
Total Propellers		5,678.72
Brigs.		
Young America	Jones,	346.29
Schooners.		
North Star	"	366.94
Homer Ramsdell	"	275.91
C. Reeves	"	279.80
Gem	Weeks,	306.50
Arabian	Bidwell & Banta,	353.93
Oriental	" "	270.68
Thornton	" "	353.98
Total Sail		2,553.98
Total of Steamers		7,926.24
" Propellers		5,678.72
" Sail		2,553.98
Grand Total		16,158.94

It is a significant fact, that out of 16,158.94 tons of vessel building at Buffalo during 1353, there were but eight sailing vessels, of 2,553.98 tons. The remainder, 13,604.96, consisted of steam vessels, showing conclusively that steam is growing more rapidly into favor, in a trade so admirably adapted to its successful application as that of the Western lakes. The high rates of freights on the lakes will doubtless stimulate vessel building to a great extent, during the coming winter. During last spring and fall, lake freights were very high, while in the middle of summer they were low, but only for a short period. The large amount of shipping now on the stocks at all the lake ports, leads to the hope that prices will not be apt to rule as high next spring as is generally expected. Nevertheless, there is no reason to doubt that the commercial marine of the lakes will be very prosperous for many years to come, as the increased productions of the country, resulting from the stimulated influence of the completed and completing railroads, and the changes in the channels of trade which such roads cannot fail to effect, will augment the material for transportation with an unexampled rapidity.

TRADE WITH CANADA.

By reference to the tables which follow, it will be seen that the trade between Buffalo and Canada is no inconsiderable one, and that it is increasing rapidly with each year. It may be well to observe here that much of the property purchased in Buffalo for the Canadian market passes over the Buffalo and Niagara Falls Railroad to the Suspension Bridge, where it is reported as passing into Canada, from the Niagara District, and is as such reported as the trade of that District, and therefore does not appear in our tables, while in fact it is a part of the Buffalo trade.

The total value of the imports into the District from Canada, during the year 1853, was $392,719, and the amount of duties collected thereon was $84,943 33, or an increase over last year of $15,219 59.

The value of the export to Canada from the District of Buffalo Creek, for the year 1853, as reported at the Custom-House, is $992,406, or an increase over 1852 of $151,606.

The annual duties collected at Buffalo for a series of years are as follows:—

1844	$8,120 18	1849	$46,939 86
1845	12,047 49	1850	67,649 95
1846	12,389 78	1851	92,357 69
1847	24,361 78	1852	69,723 74
1848	24,236 30	1853	84,943 33

It will be seen by the above that the amount of duties collected during 1853 falls short of that collected in 1851, by $9,414 26. Of the amount, viz.: $92,357 69, collected in 1851, $45,000 was for duties on railroad iron alone, and this year there has been, comparatively, no duties collected on that article. It therefore, appears that there has been a large increase of other articles, on which there has been a large increase of duties.

Statement of Canadian Produce Imported into the District of Buffalo Creek, for Warehousing, and for Transportation in Bond to the Port of New-York, for Transportation to Foreign Countries, during the year ending 20th Dec., 1853:—

Articles.	Quantity.	Value.
Wheat, bush.	163,378	$169,008 57
Flour, bbls.	19,221	102,841 44
Ashes, casks	173	2,868 86
Butter, kegs	238	1,996 66
Beef, tcs.	100	1,230 00
Fur Skins, No.	17,855	1,125 00

Statement of Goods Transferred from Warehouse in other Districts to Buffalo, for Warehousing and for Exportation to Canada, during the season 1853:—

	Quantity.	Value.
Sugar, hhds. and tcs.	1,036	$43,291 00
Dry Goods, Hardware, etc.	—	59,203 00
		$102,494 00

Statement of Merchandise remaining in Warehouse at the Port of Buffalo on the first of January, 1853:—

	Quantity.	Value.
Earthenware, crates	314	$11,829 97
Wheat, bush.	26,319	10,563 92
Flour, bbls.	1,742	5,376 00
Sugar, hhds.	14	519 00
Brandy, casks	5	57 00
Gin, "	4	129 00

Statement of Merchandise remaining in Warehouse on the 20th Dec., 1853:—

	Quantity.	Value.
Earthenware, crates	189	$7,665 69
Brandy, casks	49	1,954 00
Pig Iron, tons	853	11,259 00
Wheat, bush.	4,918	6,250 00
Brandy and Gin, casks	24	1,523 00

Statement of Merchandise remaining in Warehouse at the Port of Buffalo on the 20th Dec., 1853 :—

Sugar, hhds. and tcs.	1,036	$43,291 00
Dry Goods, Hardware, Liquors, Cigars, etc.	—	59,203 00
Total		$102,494 00

Abstract of Domestic Produce and Manufactures Exported from the District of Buffalo Creek, during the year ending 31st Dec., 1853 :—

Articles.	Quantity.	Value.
Oil, Whale, galls.	9,846	$10,193
Manufactures of Wool	—	21,035
Pork, bbls.	203	2,726
Hams and Bacon	13,130	1,176
Cheese	19,520	1,449
Whisky, galls.	49,187	11,484
Leather, lbs.	17,291	3,611
Candles, Tallow, lbs.	9,172	945
Tobacco	43,125	6,582
Sugar, brown	89,286	5,565
Molasses, galls.	6,041	2,620
Salt, bbls.	1,433	1,605
Dry Goods	—	182,392
Sundries	—	41,843
Groceries	—	216,413
Books	—	15,496
Glassware	—	12,228
Machinery	—	9,322
Clocks	550	1,612
Fish, dried, lbs.	19,626	971
Fish, pickled, bbls.	950	1,046
Hardware	—	164,680
Boots	5,111	11,573
Shoes	8,178	1,315
Coal, tons	217	1,636
Paper	—	3,289
Tin Ware	—	2,471
Books and Maps	—	12,987
Nails, lbs.	38,286	1,952
Oysters	—	2,134
Drugs	—	3,423
Medicines	—	2,109
Tar, bbls.	326	1,520
Tallow	66,827	5,375
Corn, bush.	92,021	52,068
Potatoes	646	194
Rice	50	1,172
Soap, lbs.	14,967	672
Iron Manufactures	—	25,324
Cottons	27,517	2,344
Do. white	36,972	3,089
Carpeting	2,425	2,385
Brooms, doz.	46	168
Furniture	—	11,479
Hides	268	1,024
Biscuit, bbls.	16	50
Coaches and Carriages	—	$3,316
Hats	—	643
Gunpowder, lbs.	1,410	282
Copper and Brass Man'tures	—	1,892
Wearing Apparel	—	2,984
Steam Engine	1	5,000
Machines	—	850
Broom Corn	—	1,522
Nails, lbs.	27,766	1,587
Turpentine	—	2,379
Rosin, bbls.	28	214
Salt	1,200	1,376
Engines	3	28,000
Lime	134	154
Horses	30	2,716
Whalebone, lbs.	71	36
Marble Stone	—	2,567
Railroad Cars	9	4,200
Skins, kip	—	169
Flour, bbls.	247	1,093
Glass, boxes	770	1,316
Rope, lbs.	15,000	1,471
Saddles	—	1,026
Wood and other Lumber	—	691
Snuff, lbs	1,760	337
Lead	1,100	47
Iron in bars	27,791	986
Flax and Hemp Bags	250	60
Umbrellas	168	181
Earthen and Stone Ware	—	1,232
Trunks	90	280
Candles, sperm, lbs.	280	85
Fruit Trees	—	498
Skins and Furs	49,000	908
Castings	4,700	176
Bricks	27,000	111
Flour Barrels	600	117
Satinette, yards	800	400
Beef, bbls.	56	810
Oil Cloth	826	831
Oakum, bales	2	86
Beans, bush.	25	23
Ale, bbls.	35	215
Total value		$992,406

Abstract of Foreign Merchandise Imported from Canada, in the District of Buffalo Creek, N. Y., for the year ending Dec. 31, 1853 :

Articles.	Quantity.	Value.
Iron, pig, tons	205	$3,269
Iron, Scotch, tons	1,378	21,309
Iron, scrap, lbs.	102,788	569
Skins, deer, undress.	40	8
Fur Skins	85	49
Lumber, Pine, und. ft.	39,005,821	183,165
Do. do. dressed.	474,867	3,037
Timber do.	121,866	4,841
Do. Oak	399,499	22,609
Plank do.	1,070,948	7,766
Walnut Lumber	1,646,662	13,353
Shingles	3,042,050	2,910
Staves	35,105	189
Boat Knees	295	32
Firewood, cords	276	$287
Lath	1,847,700	1,005
Railroad Ties	27,983	4,189
Barrel Hoops	11,000	22
Whitewood, ft.	908,771	3,442
Maple Lumber	1,592	264
Oak Piles	82	42
Poles	300	46
Ash Lumber, ft.	19,299	95
Spars	2	9
Cedar Posts	—	264
Hides, green, No.	1,022	160
Sheep Skins	40,152	12,657
Wool, lbs.	32,888	6,670

Abstract of Foreign Merchandise, &c.—(Continued.)

Articles.	Quantity.	Value.
Ale, bottles	72	$9
Gin, galls.	1,094	374
Sherry Wine, casks	20	664
Brandy, galls.	1,209	1,270
Butter, lbs.	107,427	12,173
Cheese	2,902	271
Bacon	498	63
Beef	2,885	141
Rags	42,021	881
Wheat, bush.	8,568	6,575
Barley	4,289	2,168
Corn	156	46
Oats	6,236	1,324
Flour, bbls.	142	881
Fruit, boxes	—	126
Horses, No.	83	4,607
Cattle	410	4,046
Hogs	2,067	3,186
Sheep	554	1,227
Poultry	—	99
Hay, tons	58	413
Fish	3,533	64
Stone, cords	55	131
Clay, bbls.	20	2
Wagons	8	483
Shoddy, lbs.	891	37
Flour, Buckwh't, cwt.	162	206
Shorts, tons	65	1,045
Crockery, crates	126	4,212
Honey, lbs.	20	3
Eggs, doz.	3,086	$264
Carpeting, yards	18	7
Grass Seed, bush.	606	1,059
Personal Effects	—	3,933
Old Copper, lbs.	3,661	455
Stave Bolts, cords	7	7
Brown Sugar, lbs.	19,707	613
Canal Boats, No.	7	1,057
Woollen Cloth, yards	14	14
Buffalo Robes	2	20
Saddlery, harness	—	49
Fur Skins, undres. lbs.	1,141	123
Potatoes, bush.	112	36
Beeswax, lbs.	124	13
Ploughs, No.	2	19
Horns, tons	4	49
Gun Stocks	18	3
Steam Boiler	1	412
Sizing Scraps, cwt.	61	76
Wagon Spokes	3,000	18
Scow Boats	2	513
Flax Seed, bush.	40	31
Manufactured Hair	3	3
Beans, bush.	3	8
Blankets	2	3
Manufactured Cotton	—	17
Castings, pounds	250	9
Manufactured Iron	800	92
Total value		$302,719

IMPORTS AND EXPORTS BY CANAL.

Statement of Property first cleared at the Collector's office at Buffalo, on the Erie Canal, during the year 1853. *showing the quantity and average value of each article, and also the whole amount of Tolls received at that office on boats, passengers, and each article of property, during the same period :—*

THE FOREST.

Description.	Quantity.	Value.
Fur and Peltry	230,623	$230,623

Product of Wood.

	Quantity.	Value.
Boards & Scantling	61,885,663	1,237,713
Shingles	1,983	5,453
Timber, c. ft.	41,688	6,253
Staves, lbs.	76,066,068	228,199
Ashes, Pot and Pearl	13,216	370,148
Total tons	145,017	$2,078,389

AGRICULTURE.

Product of Animals.

	Quantity.	Value.
Pork, bbls.	86,085	1,377,360
Beef	49,346	468,788
Bacon, lbs.	15,474,367	1,392,693
Cheese	2,055,737	205,573
Butter	739,199	118,271
Lard, Tallow & L. Oil	8,759,456	875,946
Wool	4,262,356	1,704,942
Hides	978,211	88,039
Product of Animals	38,051	$6,231,612

Vegetable Food.

	Quantity.	Value.
Flour, bbls.	658,364	3,621,003
Wheat, bush.	4,958,8185	$,950,581
Rye	59,727	53,754
Corn	3,118,691	1,033,588
Cornmeal, bbls.	2,378	8,323
Barley, bush.	247,223	160,701
Oats	1,163,599	465,440
Bran and Ship Stuffs	645,651	6,457
Peas and Beans	13,007	16,259
Potatoes	128	77
Dried Fruit, lbs.	83,020	11,622
Vegetable food, tons	234,434	$12,237,805

All other Agricultural Products.

	Quantity.	Value.
Unmanuf. Tobacco, lbs.	3,391,133	169,557
Hemp	676,317	47,342
Clover and Grass Seed	1,543,509	108,045
Flax Seed	1,274,811	25,496
Hops	1,366	546
Total tons	375,930	$18,810,403

MANUFACTURES.

	Quantity.	Value.
Domestic Sp'ts, galls.	1,627,717	438,651
Oil Meal & Cake, lbs.	2,192,606	21,928
Leather	678,481	217,114
Furniture	332,535	29,908
Bar and Pig Lead	52,998	4,240

Description.	Quantity.	Value.
Pig Iron	321,920	$6,438
Bloom and Bar Iron	231,644	9,766
Castings and Iron Ware	111,482	44,59
Domestic Salt	109,680	877
Total tons	8,417	$742,878

MERCHANDISE.

Sugar, lbs	27,553	$1,929
Molasses	9,082	318
Coffee	2,354	283
Nails, Spikes and Horse Shoes	37,420	1,871
Iron and Steel	290,515	20,336
Railroad Iron	695,954	20,879
Flint Enamel, Crockery and Glassware	422,236	29,556
All other merchandise	1,299,292	$91,150
Total tons	1,393	166,322

OTHER ARTICLES.

	Quantity.	Value.
Live Cattle, Hogs and Sheep	6,880	344
Stone, Lime and Clay	4,556,761	9,113
Gypsum	550	6
Mineral Coal	20,545,681	51,364
Copper Ore	1,156,808	300,783
Sundries	9,056,076	492,804
Tons	18,061	$854,416
Total tons	548,818	22,652,408
Total tolls		$695,364 71

Statement of Property left at Buffalo, going to Western States and Canada, on the Erie Canal, of which was left between that place and the Collector's office next in order on the Canal; showing the quantity and average value of each article, during the year 1853:—

THE FOREST.

Description.	Quantity.	Value.
Fur and Peltry	1,206	$1,276
Product of Wood.		
Boards and Scantling	3,658,715	73,174
Shingles	287	789
Timber	1,151,356	172,703
Staves	40,186	121
Wood	34,517	86,293
Total tons	125,830	$334,286

AGRICULTURE.

Product of Animals.

	Quantity.	Value.
Pork	3,818	61,088
Beef	6	57
Bacon	965	87
Cheese	1,601	160
Lard, Tallow & L. Oil	12,586	1,259
Wool	34,047	13,618
Hides	1,092,120	218,244
Tons	1,182	$294,513

Vegetable Food.

	Quantity.	Value.
Flour	43,751	230,631
Rye	345	311
Corn	11,281	6,994
Cornmeal	8,000	28,000
Barley	2,773	1,802
Oats	45	8
Bran and Ship Stuffs	395,517	3,955
Peas and Beans	5,044	6,305
Potatoes	37,984	22,790
Dried Fruit	214,373	30,013
Tons	7,595	$450,819

All other Agricultural Products.

	Quantity.	Value.
Cotton	505	51
Unmanufact'd Tobacco	4,639	232
Flaxseed	1,380	28
Hops	128,429	$51,371
Tons	67	51,682
Tot al tons	8,844	687,014

MANUFACTURES.

	Quantity.	Value.
Domestic Spirits	10,990	2,638
Oil Meal and Cake	21,911	219
Leather	1,549,044	405,694
Furniture	3,657,133	438,856
Bar and Pig Lead	21,636	1,731
Pig Iron	13,763,460	275,269
Bloom and Bar Iron	1,639,622	67,985
Castings and Iron Ware	27,687,945	1,107,917
Domestic Cottons	1,031,450	371,326
Domestic Salt	59,205,314	473,643
Foreign Salt	122,160	1,221
Total	54,424	$3,236,499

MERCHANDISE.

	Quantity.	Value.
Sugar	22,356,618	1,564,963
Molasses	15,480,124	541,804
Coffee	9,827,942	1,179,353
Nails, Spikes, etc.	7,206,847	360,343
Iron and Steel	18,669,738	1,306,881
Railroad Iron	144,985,834	4,349,576
Crockery & Glassware	12,313,359	861,936
All other mdse	121,929,535	48,771,822
Total tons	176,389	$58,936,678

OTHER ARTICLES.

	Quantity.	Value.
Live Cattle, Hogs & Sheep	12,300	615
Stone, Lime & Clay	83,373,256	166,746
Gypsum	471,106	4,711
Mineral Coal	46,626,510	116 567
Sundries	16,128,363	1,417,625
Tons	73,305	$1,417,625
Total tons	438,786	$64,612,102

Art. X.—VITAL STATISTICS—THE CARLISLE TABLE.

In the *Necrology* for February, 1851, is contained the name of Joshua Milne, Actuary of the Sun Life Assurance Society of London, and author of the celebrated Carlisle Table of Mortality. He died at the advanced age of seventy-eight, after a long life successfully devoted to mercantile and scientific pursuits.

It would now be impossible to define the vast influence of this table in commercial transactions, the immense amounts of money invested under the guidance of its proportions, or the increased facilities created for unfolding the true system of vital statistics and population. The skill and full research displayed in its preparation rapidly gained public confidence, till, incorporated into physiological science, the name of the Carlisle Table has become familiar as household words wherever the English language is spoken. The author's researches in the statistics of life will form an imperishable monument to his memory.

We refer to the labors of Mr. Milne more especially for the purpose of inviting attention to the marked improvements which his analysis of "the Probabilities and the Expectation of life, and the construction of Tables of Mortality," brings to medical statistics, and to political economy.

For the present, passing over the seeming confusion produced by frequent removals from one part of the country to another, and by a vast foreign emigration, it has been found that mere "bills of mortality" are of limited value to vital statistics. They may serve to show that one year is more salubrious than another, but, for the more important uses, are wholly inadequate. Death is the great law of nature—a matter of course in every population. It is only when the record of deaths, with their ages, is accompanied by the corresponding numbers of the living, that the true relation of one to the other can be properly traced. The one term is as requisite for comparison as the other, and the attempt to reason from either alone has led into frequent and grave errors.

The Carlisle Table was published in 1815, and from its exhibiting greater expectations of life than the old Northampton Table, many have supposed that the length of life had increased during the interval. This inference would be admissible had the Northampton Table been constructed from the proper data, which was far from being the case. The author, Dr. Price, (his valuable services are worthy of remembrance,) made use of the "genuine" bills of mortality for Northampton; but he falsely assumed that the population had been stationary during the century previous, whereas it is now known that it had increased

during the whole period. In some one of the valuable papers published by the English Registrar, the mistake is clearly examined, and a true table given, showing what the values would have approximated to had the Northampton Table been rightly constructed. For example, at the age of twenty-five, the expectation of life by the old table is a small fraction short of thirty-one years, and by the true table it is a fraction over thirty-six years. At the same age, the reversion of one hundred dollars, payable at death, has for its present value $45 20 by the old Northampton Table, and $37 96 by the true Northampton Table. So manifest are the inaccuracies of the old table that it can no longer be referred to as authority, or quoted by the side of the Carlisle, the English Life, and other approved tables.

Among the obstacles which have lain in the very threshold of the research of the true law of life, is the diversity of views with which its every-day phenomena are regarded. A person experiencing the loss of near relatives, or seeing funeral processions pass to the cemetery more frequent than usual, will receive an impression of the unhealthfulness of the season; while another person, engrossed in business, will hold to the opposite opinion, and affirm that there is no "prevailing malady." Differences of opinion likewise prevail among physicians. The tide of life seems, as it were, to ebb and flow with atmospheric vicissitudes; at one time oppressed with heat, at another suffering from cold, or exposed in the depth of summer to contagion, when marshes are dried, and the decay of vegetable matter and infusoria and animalculæ fill the air with miasmata.

Another cause of the slow progress of vital statistics is the periodical visitation of epidemics, which swell the mortality of particular years to an irregular or extraordinary amount. The recent prevalence of Asiatic cholera in 1849 and '50 was of this kind, when many places in the United States were decimated with great fatality, though its ravages chiefly fell on those of intemperate habits, the dwellers in damp cellars and filthy tenements, and consequently were, in a considerable degree, preventible. In all cities where registers of mortality have been kept through a series of years, remarkable variations are exhibited. Thus, in 1835, the number of deaths in Charleston was 664; during the next year 392 died of cholera, and the annual aggregate rose to 1,172; while in ordinary seasons the annual deaths have been near 600 in a population of 30,000. In the year 1850 there were 856 deaths, the population having increased to 43,000 inhabitants.

But though many circumstances would seem to veil the phenomena of life in mystery, yet patient and continuous investigation has discovered a commanding point of view, from which the whole is reduced to system and order. We refer to the sys-

tem of Life Tables, of which the author of the Carlisle Table, among others, was "the very opener and intelligencer." The unequal distribution of old and young lives, and the varying increase of population, make common processes generally erroneous. The method of "life tables," founded upon a large mass of population, corrects for these inequalities, and presents a true type of vitality,—"the last result of all the causes, almost infinitely complicated, that have any influence upon the condition of the people."

We have not here space to describe the interesting applications of the method of life tables to the population of Great Britain, Sweden, and Germany, and in educing "les lois de la population et de la mortalité en France," which may be said to have more than tripled the value of the national census. It is too evident to need remark that this field of research in America has been neglected, and demands more comprehensive measures. Too long in ignorance of the laws of life prevailing among us, our medical writers, our life insurance societies and annuitants, have been dependent on the efforts of foreign governments, or foreign individuals.

To return to the Carlisle Table, the view of an eminent writer in the Reports of the English Registrar, several years since, will possess some interest:—"I avail myself of this opportunity to pay my humble tribute to the framers of the Carlisle Table; to Dr. Heysham, who collected the facts with so much care, and to Mr. Milne, who cast those facts into a scientific form, and applied them so judiciously to the purposes of life insurance. A good deal has latterly been written about the law of copyright, and the remuneration of writers on popular subjects. Here is a case of a peculiar kind: A private person publishes an original work, really evincing as much genius and the result of as much labor as enter into the construction of twenty or thirty popular volumes. He has to publish it at his own risk, for the booksellers know that the sale will be limited, and the returns slow. But the Tables of the Values of Annuities, and the calculations which it contains, are not only of importance in a scientific point of view, but may be made, and actually are made, the basis of extensive monetary transactions, in the advantages of which the author has not the slightest legal share. Is this just? Is it encouraging to men of Mr. Milne's candor, integrity, and liberality, who conceal nothing, but give the world the fruits of their long studies, at almost a certainty of pecuniary loss? It would be well, perhaps, if the directors of some of the assurance societies, who have men of the strictest honor and the nicest sense of justice among their numbers, would some fine day ask themselves, how much they are indebted to the author of the *Carlisle* Table."

In conclusion, a brief notice of the original data of the Car-

lisle Table will not be inappropriate. It has been supposed that this table represented only a population of less than ten thousand persons; but the weight of its values will be found, on examination, to be much greater. The total deaths employed were those which happened in the city of Carlisle during the nine years from 1779 to 1787, amounting to 1,840 in number. The average population during the same time was 8,177, which, repeated nine times to correspond with the number of years, gives 73,593; and this, increased by the deaths, will amount to an aggregate of upwards of 75,000 observations. And thus, except that the number of deaths has been rendered more accurate by including nine years' experience, the reliance due to the Carlisle Table is nearly equivalent to that of a table founded on a census of 75,000 persons, of diversified occupations and localities, during a single year.

Art. XI.—THE PACIFIC RAILROAD.

[UNDER another head in the present number of the REVIEW, we shall introduce some particulars of the charter granted by the State of Texas to the Pacific Railroad. The route proposed for this road we believe to be altogether the most favorable presented to the country, and have no doubt, under the great inducements offered, of its eventual success. The labors of Gen. Rusk in procuring this charter entitle him to the gratitude of the country. The present efficient head of the War Department has labored assiduously in directing the various surveys ordered by Congress, and to his zeal and energy too much praise cannot possibly be awarded.

The paper which follows was prepared for the REVIEW, and we therefore publish it, promising to follow it up with another which shall develop in detail the advantages of the *Southern route*.]

He must be possessed of remarkable genius who will undertake to deduce, from the store of published arguments and *ex parte* testimony, on the subject of a Pacific Railroad, material for a candid and unbiased judgment, which shall justly favor no one scheme more than another. The task would prove herculean, and ordinary intelligence and capacity are incompetent to achieve it. But this ought to constitute no reason why the subject should be abandoned. The difficulty, on the contrary, should be a stimulant to more extended inquiry; for whether the reader is enabled or not to subscribe to any particular project of improvement, in this connection, to the rejection of all others, every item of information collected and added to the

general fund is so much contributed towards aiding public opinion.

Exploration has convinced every one that there are several ways of connecting the waters of the Atlantic and Pacific by ordinary railway. The obstacle to be surmounted is, not the location of a route, but what route to choose of the number already located; not the question of practicability, but the combined one of availability and expediency. None will doubt the utility of the contemplated measure; but all may very justly find exception to favoring a monopoly, or determining a line that shall contribute mainly to the benefit of a section.

The chief difficulty, therefore, which besets the proposition is the reconciling of conflicting interests, and adapting preferred claims to a general emergency. It is obvious that but one, *if* that one, railroad will be constructed between the Atlantic and Pacific across this portion of the continent for a generation, perhaps a century; but it is equally clear to the reason that if once such a trunk road is opened, lateral off-shoots from it will ramify the country in all directions, and form a complete iron net-work from shore to shore of the two great oceans. Hence, indeed, to the thinking of some, it matters little where the termini shall be, or through what regions of territory the line shall pass; but all are not so easily satisfied, especially those States remoter from the immediate route than others, and whose wants and productive importance would seem to declare them first entitled to consideration. Thus the question remains unsettled, while every day reveals additional necessities for the construction of the road, and rebukes the nation for wasteful delay.

Meanwhile, individual interest improves the opportunity of doing what it can towards forwarding its own views. It associates itself into a company, and casts about for means and appliances to accomplish the stupendous undertaking. It virtually attempts to take out of the hands of the government the consummation of the gigantic scheme; and under the name, style, or title of "the Northern Pacific," the "Central Atlantic and Pacific," or the "Southern Pacific and Mississippi" Railroad Company, boldly offers to do the work which the nation is too timid or too negligent to engage in, or which furnishes politicians but too dangerous a platform, wherever to risk a legislative career. Every company, so organized, aims to benefit particular cities, for the members of the organization are, to all intents and purposes, but the local representatives of such cities or corporations. Hence, when we speak of a certain company, we should never lose sight of the towns along the line of its proposed improvement; for in them we shall surely find houses or lands, mills or factories, stores or storehouses, which are monuments of the enterprise of the towns, but more of the indi-

vidual owners who associate together for the purpose of increasing the value of their property, and enlarging their facilities for getting to market, all under the cloak of contributing to the general weal.

Therefore, we repeat, it is no easy task to collect altogether reliable data from the numerous publications of the day, on the feasibility of a Pacific Railroad, and on the fairness and impartiality of this testimony give an unqualified preference for any single project over another. These publications emanate from parties locally attached, or locally interested; and whatever comes from them can only be received with many grains of allowance and distrust.

We have lying before us a volume entitled "Railroad to the Pacific; Northern Route: Its General Character, Relative Merits, &c. By Edwin F. Johnson, C. E. Second edition. New-York: Railroad Journal Job Printing Office, 1854." Any one, on reading the title-page, will hazard the opinion that this work treats of the Northern route as far superior in every respect to any of the more Southern routes, and that if New-York city is not in so many words presented as the Atlantic terminus of the projected road, Chicago is; for while it is an ascertained fact that the Northern Company are capitalists, mostly resident in these two cities, it is a fact quite as significant that they hold large tracts of domain and other property immediately on or contiguous to the line. The volume before us is, indeed, a one-sided view of the Pacific Railroad question; but the author states his grounds at the outset; and we are, therefore, prepared to meet in him an open-handed antagonist.

Mr. Johnson says that no points on the Pacific are so eligible for the Western terminus of the projected road as San Diego and San Francisco, in California, the Columbia River in Oregon, and a point connected with the Straits of Juan de Fuca, in the Territory of Washington. He thinks the paramount question that should influence a decision in selecting, not only the termini, but the route itself, beyond that of domestic expediency, is, the securing of the carrying trade between the ports of the Eastern Seas and the Atlantic American ports. He arrives at the conclusion that Shanghai will ultimately become the commercial metropolis of the Eastern hemisphere, and the dispensatory of the wealth of the Orient. In view of this, to him settled fact, the point most expedient to select on the Pacific coast should be, as nearly as possible, directly opposite Shanghai, on the American Continent; and that point he shows to be the Straits of Juan de Fuca. Mr. Johnson does not for a moment permit himself to descend the Atlantic coast towards Charleston, Memphis, Savannah, or New-Orleans; for in that case he would necessarily be compelled to abandon the Straits position for an-

other terminus lower down on the Pacific side. He rests every proposition on the assumption that New-York is already marked out by nature for the Atlantic terminus. "The prominent points," he says, "or those which are most favored in respect to climate, and which command most of the capital of the country, and within which is concentrated the greatest amount of commercial and manufacturing interest, are Boston, New-York, Philadelphia, and Baltimore. Of these New-York is decidedly the first, and Philadelphia, only eighty miles distant from it in a direct line, the second." If we were criticising Mr. Johnson's book, instead of compressing from it material for a paper, we should say that if New-York had little else to recommend it as the Atlantic terminus than its wealth and manufacturing capital, those considerations should have, or ought to have, but slight weight with the community. An argument put forth on such a basis would depend on the weakest of all support.

The following is Mr. Johnson's general description of the route:

From New-York city to this point, (the Straits,) the shortest and most direct line (which is indicated by the arc of a great circle of the earth connecting the two) passes considerably to the north of the forty-ninth degree of north latitude, where the latter meets the Pacific, and hence the Straits of Juan de Fuca, the most northern of the places named on our Pacific coast, are situated nearest to the direct line to China, within the limits of the United States, and are, in this particular, the most suitable for the Western terminus of the proposed railroad. In proceeding from New-York city to the Straits of de Fuca, the position of the great lakes and of the international boundary make it necessary to deflect the line so far to the south as to pass the southern extremity of Lake Michigan. The city of Chicago, which is the nearest port of any magnitude to that portion of the lake, becomes, therefore, a point in the proposed route. This city is also indicated as a suitable point on the line of the proposed road, from its probable future relation to the internal commerce of the United States. Its position at the southwestern limit of the unrivalled navigation of the great lakes, and the outlets therefrom to the Atlantic, and the vast and very fertile region commercially dependent upon it at the West, a region which is rapidly filling up with a population unsurpassed for intelligence and enterprise, give assurance of its becoming ultimately the greatest of the very large and flourishing inland cities of our Union, and as such would justify a departure, to a certain extent, from the direct course of the proposed road, even if there were no other reasons such as have already been stated for such a deviation.

From the city of Chicago lines of railroad, by very direct routes, are either already built, or in a course of construction, leading to all the prominent cities named, and others on the Atlantic seaboard, and hence there is no occasion for any further notice of this portion of the route.

The city of Chicago is distant from the Straits of De Fuca, in a direct line, 1,752 miles, as computed from the latitudes and longitudes of the two places. This line is represented upon the accompanying map, and appears as a curved line crossing the Missouri River in latitude 46° N. nearly, and passing to the north of the Great Falls on that river.

In examining the position of this line, it will be seen that a principal obstacle to the attainment of a direct route for a railroad between the points

named, is the prolongation, to the north and east, of the chain of mountains known as the Wind River or Black Mountains, which extend from near the South Pass of the Rocky Mountains northeasterly between the Yellow Stone and Missouri Rivers, to near the latitude of 48° N., and thus cause the great bend in the direction of the latter river in its course to the ocean in the latitude named.

There are other obstacles which are also of a serious character on the direct course. These are the crossings of the Mississippi, Missouri, and Yellow Stone Rivers, where they are navigated by large boats; the range of mountains between the Yellow Stone and Upper Missouri, and the more broken and unfavorable character of the surface generally from the Mississippi River to the Rocky Mountains. These latter, which lie at the sources of the Missouri, present, as will be seen hereafter, under a slight deviation from a direct course, no very serious obstacle to the passage of a railroad.

The chain of Wind River and Yellow Stone Mountains, and the other principal obstacles named, are all entirely avoided by carrying the line direct from Chicago to the Great Bend of the Missouri above mentioned; a departure from the direct course which will not very much increase the distance, and which is fully compensated for, irrespective of its superiority from the circumstances named, by the greater facilities which the country affords for the construction of a railroad, in the supply of timber and other materials, and in the opportunity afforded for a connection by a branch railroad with the west end of Lake Superior, and through that with the chain of inland waters of which that lake forms a part.

From the Great Bend of the Missouri the route proposed is along the northern side of that river to one of several passes which are known to exist between its sources and those of the Flathead, or Clark's branch of the Columbia River; and thence along the valley of Clark's river, and of the Columbia, to some point in the vicinity of Fort Okanagan. Here the proposed route leaves the Columbia, and after surmounting the elevated ground which forms the northern extremity of the Cascade or President's range of mountains, terminates at the desired point on the Pacific.

To return to the Rocky Mountains. These mountains, which separate the waters of the Atlantic from the Pacific, do not, at the place proposed for crossing them, possess the formidable character as mountain barriers which pertain to them in other places. They are here very much reduced in height, and are penetrated by passes or defiles which are evidently very feasible for a railroad.

The Rocky Mountains, instead of being a lofty chain of uniform or nearly uniform elevation, extending from the Mexican Andes northward to the Arctic Seas, appear, upon examination, to be arranged in a series of groups, similar, although on a very much larger scale, to the White Mountains of New-Hampshire, or the Adirondacks of New-York. In elevation, their highest peaks within the limits of the United States are equalled, if not surpassed, by those of another and parallel range lying nearer to the Pacific, and known as the Sierra Nevada and Cascade or President's range of mountains.

Within the limits of the United States are two very marked depressions in the range of the Rocky Mountains. One where the sources of the river Gila approach the waters of the Rio Grande Del Norte, near the Mexican boundary, the other at the place already named between the sources of the Missouri and the Columbia.

Between these is an extended group or series of mountains, varying in height at different points, and divided by passes into lesser groups, from whose slopes flow the waters of the Columbia, the Colorado, the Rio Grande Del Norte, and the Missouri and Mississippi. The mountains which compose this immense group are situated upon a plain elevated on their south-

ern and eastern side 4,000 to 5,000 feet above the level of the sea; and on their northern and western side from 3,000 to 4,000 feet above the same level.

The Mount Washington, of the northern section of this group, is Fremont's Peak, near the South Pass, so called, rising to the height, according to the measurement of the explorer, from whom it takes its name, of 13,570 feet above the ocean level. This and the three Tetons, and the three Buttes, are the most noted points in this portion of the series, all of them being visible to travellers by the South Pass for some distance along their route.

From these elevated points proceed ranges in various directions: the Bear Mountains to the south; the Green River Mountains, forming the main range or Rocky Mountains proper, to the southeast; the Wind River and Black Mountain chain to the northeast; the Salmon River Mountains to the west; the Kooskootskie Mountains to the northwest, and the continuation northerly of the main range to the place of general depression, which is in a line nearly with the valleys of the Upper Missouri, and Clark's branch of the Columbia—a depression which may be considered as extending through three or four degrees of latitude, since within these limits no less than five passes are known to exist, from such partial explorations as have thus far been made.

In proceeding north beyond the latitude of forty-nine or fifty degrees, the mountain chain again rises, attaining its highest elevation in the Caledonia group, in British North America, in latitude fifty-two or fifty-four degrees north, near which are found the lofty peaks of Mount Hooker and Mount Brown, the former 15,700 feet, and the latter 16,000 feet above the level of the sea. Gathered about these, or issuing from them, are other peaks and ranges forming the series or group from whence flow the waters of the north branch of the Columbia and Fraser's River on the west, McKenzie's River on the north, and Peace River and the Saskatshawan on the east.

The length of the route as above described, from the city of Chicago to the Pacific, is estimated as follows, viz.:—

In Illinois	70	miles.
Wisconsin	290	"
Minnesota	620	"
Missouri (N. W.) Territory	420	"
Washington "	560	"
Total	1,960	"

Of this distance, nine hundred and ninety miles, or about one half of the whole, are embraced under existing acts of incorporation, granted by the several States and Territories for the construction of a railroad on the proposed route, as follows:

The portion in Illinois is included in the charter of the "*Illinois and Wisconsin Railroad Company.*" That of Wisconsin in the charter of the "*Rock River Valley Union Railroad Company;*" and that through Minnesota in the charter of the "*Minnesota Western Railroad Company.*"

The portion of the line in Illinois is located and under contract. Forty miles of it are graded, and twenty-five miles of track have been laid from Chicago west, and a considerable expenditure has been made for equipments. The Company will soon commence the business of transportation, and the road will be completed to the Wisconsin line by the first day of July next.

Of the portion in Wisconsin, fifty-five miles are located and under con-

tract, and the grading is in progress at various points. This portion passes through Janesville in the Rock River Valley, the principal town in the interior of the State, and extends to Madison, the capital of the State. This portion will also be completed by the first day of July next.

It may not be improper to state here that the same Company are authorized to construct a branch from Janesville northerly along the Rock River Valley to Lake Superior. This branch is now under contract, and building to Fond du Lac, on the Winnebago Lake, eighty-six miles from Janesville. Forty miles of it are graded, and the track laid for half that distance, and transportation has already been commenced upon it.

This branch, when completed, will extend to the copper region of Lake Superior, and connect with the navigation of that lake, and as it passes through a rich and productive portion of the State, will eventually do a large business.

From Madison, on the main line northwesterly, surveys have only been carried a short distance beyond the Wisconsin River. For the remaining distance to the Minnesota line, the ground has not yet been instrumentally examined with a view to the location of a railroad. Measurements for other purposes have, however, been made, sufficient to show its general character, and that two routes, at least, exist, either of which are very favorable for the purpose.

In Minnesota, a survey or reconnoissance has been instituted under the late Act of Congress, making an appropriation for the exploration of several routes for the Pacific road. These surveys, for the line in question, are under the direction of Governor Stevens, of the new territory of Washington, who will continue his reconnoissance to the Pacific, upon the route of the proposed road.

The charter in Minnesota is a very liberal one. It secures to the Company all lands which may be granted by Congress in aid of the road within the limits of the territory, without further action on the part of the government of the territory, and is held by the same parties who are engaged in constructing the lines in Illinois and Wisconsin.

The Companies in the two latter States have entered into an agreement, authorized by their respective charters, to consolidate and bring them under one common management, and a similar arrangement is to be entered into with the Company in Minnesota as soon as an organization is effected in that territory.

The road in Illinois and Wisconsin is being built with the wide gauge of six feet, a very proper gauge for a road of the character of the one in question. Arrangements for harbor accommodations and necessary depot grounds in the city of Chicago, and at the west end of Lake Superior, and elsewhere, have been made, and are on a scale commensurate with the importance and magnitude of the work.

The population along and near to the located portion is already large, and is very rapidly increasing. Irrespective of the continuation to the Pacific, the importance of the several lines named in Illinois, Wisconsin, and Minnesota, to accommodate the region of country lying west of the great lakes, is such as to place them in the very first class of main trunk roads.

The cost of the road Mr. Johnson estimates as follows:—

The portion of the line embraced in the States of Illinois and Wisconsin, 70 miles in one, and 290 miles in the other, being in a course of construction, will not be included in this estimate.

This portion, completed for a single track, and equipped ready for use, will probably cost not far from ten millions of dollars.

The length of the remaining portion from the west line of Wisconsin to the Pacific, as estimated, is 1,600 miles.

The cost of this for a single track complete, with the requisite turnouts, the iron rails weighing 100 lbs. per yard, with all the necessary buildings and equipments, is estimated as follows:—

From the Wisconsin line to Red River, the point of divergence of the branch to Lake Superior, 220 miles, at $40,000.....	$8,800,000
From Red River to the Great Falls of the Missouri, over the Missouri plains, the surface being very favorable, and distance 720 miles, at $45,000.....	32,400,000
From the Great Falls of the Missouri to Okanagan River, over ground more difficult of construction and access, 530 miles, at $60,000.....	31,800,000
From Okanagan to the Pacific, including the passage of the Cascade Mountains, 120 miles, at $70,000.....	8,400,000
Add cost of branch to Lake Superior, 220 miles, at $40,000...	8,800,000
	$90,200,000
Contingencies, add.....	9,800,000
Total for 1,820 miles.....	$100,000,000

equal to $55,000 per mile average.

The branch to Lake Superior is supposed to diverge from the main line at the Red River; thence across the *Hauteurs des terres* to the Mississippi, at the mouth of Crow-wing River; thence in the vicinity of the Mississippi River to where it bends to the north; thence passing near Sandy Lake to a terminus at the west end of Lake Superior, where its elevation above the sea is supposed to be about 630 feet.

So favorable is the surface of the country generally along the proposed Northern route to the Pacific, that a road of the same character, if located east of the Mississippi, could be built and equipped complete, at a cost not exceeding $40,000 per mile. The addition to this amount of upwards of thirty per cent. is believed to be sufficient to cover the extra cost of transportation of materials and provisions, and the other disadvantages incident to the construction of the road through a country, the most of which is in a state of nature, having no other facilities of intercommunication than are presented by the navigable waters of the Mississippi, Missouri, and Columbia, facilities which are indeed of very great importance, and which will contribute largely to diminish the cost of the road on the route in question.

The actual cost of the road will depend very much upon the time occupied in its construction. The revenue to be derived from it will be limited until the entire line is completed. It will be an object therefore to accomplish it in the shortest time possible consistent with a due regard to its cost. If immediately commenced and prosecuted with abundant means, it is not probable that it can be accomplished in less than from ten to twelve years, delays caused by negotiations with the Indian tribes not included. During this period, if we may judge from the past, the increase in the population of the United States will not be less than ten millions, a large portion of which increase will undoubtedly be found located on and near the line of the proposed road; so that by the time it is completed, it will have a way business of some amount which will thenceforward be constantly augmenting, and form ultimately a prominent item in the revenue of the road.

We do not deem it worth while to follow up the objections that have been urged in regard to the obstructions by snows in

this route. As might be expected, Mr. Johnson undertakes to defend the proposed route from any serious inconvenience in this respect; and we have no doubt his proofs are quite as convincing as any that have hitherto been adduced to the same end. It is more gratifying, and, indeed, more satisfactory, to find him presenting interesting details of the geological and geographical features of the country along the projected line, showing the vast stores of timber and minerals on which the future States of the Northwest will have as much need to rely hereafter as on the noble rivers and rich soils which invite to the settlement of the territories.

The subject of a Pacific Railroad has taken deep hold on the popular mind, and it will not rest contented until something more practicable than mere survey reports and memoirs grow out of public or private enterprise. It matters little what may be the motives which actuate parties in proposing any particular route; the wants of the age make a road necessary, and public or private munificence will ultimately construct it. It is at best a chance which points shall be the real termini, although ostensibly points may be determined by the surveyor's chain and the contractor's dictum. Commerce is king, and erects its own monuments—pursues its own route.

The Secretary of War has sent to the United States Senate a document containing the reports of the different parties who have been in the field the past season making surveys and explorations of the proposed routes for a railroad to the Pacific.

The following is a summary of the report made by Governor Stevens, of the *Northern* route:—

Accompanying Governor Stevens' report, is a map sketch on a scale of $\frac{1}{6000000}$ of the route of the proposed road from St. Paul to the Shayenne River, and Governor Stevens is "confident no grade will be found of more than twenty feet per mile," and "cost without equipment will not exceed $20,000 per mile."

Another map sketch is given on a scale of $\frac{1}{1500000}$ from St. Paul to Fort Union. He says the "inclosed sketch of a railroad route is certainly practicable at a cost not probably exceeding $40,000 per mile. * * * The great key points of the country are the valley of the Moose River, and the region of the Bois de Sioux." No grade is mentioned, nor profiles given, of any portion of the route.

West of Fort Union no sketches of the country have been received. The rivers along the route are reported as being very much out of place on the maps, and indeed it is impossible to trace the route definitely upon ordinary maps. No astronomical positions are given.

The nature and substance of the results obtained west of Fort Union, so far as reported, are as follows:

At Fort Benton.—Governor Stevens says, "up to this point we have found the country entirely practicable. Whichever pass in the mountains is decided upon, the Milk River Valley will furnish a good approach."

At St. Mary's Valley.—He reports that two approaches to Cabot's Pass

were examined, both requiring a tunnel, "not exceeding a mile in length," and a grade that will not "probably exceed forty or forty-five feet per mile."

To the West, "the descent down the Hell-gate River was mostly through an open valley, till the Hell-gate passage is reached, where the river winds in a narrow defile, requiring for a railroad expensive sustaining walls and embankments, and probably some small tunnels to avoid short curves." "It can be turned by tunnelling a marble mountain to the south of it, or by crossing over from a tributary of the Hell-gate in the open valley of the pass to the valley of the river Jocko, one of the principal southern tributaries of Clarke's fork." This was explored, and a barometer profile taken; "in the absence of it, can only state it will probably furnish a practicable mode of avoiding the Hell-gate defile."

Cabot's Pass is reported as being "nearly 3,000 feet below the South Pass," and "a much better one, both in summer and winter." A small party examined a Pass in the Rocky Mountains south of Cabot's Pass, and was fitted out to examine the Marias Pass to the north of it.

The Bitter Root range, west of St. Mary's Valley, are said to be impracticable.

At Olympia, Dec. 5.—Governor Stevens reports that a route was surveyed over the Cœur d'Eleine Mountains from St. Mary's to Fort Colville, but no barometer profile taken for want of an instrument. "It is probable" these mountains might be passed with a tunnel not exceeding "six, or perhaps four miles, without involving impracticable grades." Difficulties from snow "should be carefully investigated."

Lieutenant Donnelson surveyed the general line of Clarke's fork. Governor Stevens says he "reports the route from the debouche of the Hell-gate Pass to the banks of the Spokane" * * * as "practicable, involving no other difficulties than are usually met with in the Atlantic States, and that it will connect well with a route through the Marias Pass, should a practicable one be ascertained. The grass is generally good, there having been a scarcity only two nights."

The Columbia was explored from Fort Colville to the forty-ninth parallel. Captain McClellan explored the Cascade range as far north as the forty-ninth parallel, and his examinations were connected with the others under Governor Stevens.

Governor Stevens refers to Captain McClellan's examinations, and "I apprehend no difficulty whatever in the Sno-qual-me Pass to the passage of a railroad; and from information I have received from old residents, particularly from Mayor Goldsborough, a civil engineer who has carefully examined the country, it will be an easy matter to carry it to a good harbor on the sound."

According to Captain McClellan's report of September 18, the Sno-qualme Pass "is at the head of the main Yakima," some thirty-five miles north of Mount Reginer. The lowest point of the divide is 3,543 feet above Vancouver. The descent to the east to Lake Katchelas, a distance in a direct line of about three and one-fourth miles, is 1,129 feet; beyond this "there is no difficulty in the construction of a road of any kind." He did not "proceed more than a few miles beyond the divide" to the West, but as far as he went, "the valley was narrow and the descent steep." He reports Nahches Pass as 4,966 feet above Vancouver, and not so favorable as the other. In both Passes the snow accumulates in the narrow valleys, probably 20 feet, and in the mountains five or six feet.

Owing to the lateness of the season, the survey was to be continued to Puget Sound by the line of the Columb a and Coulitz.

Governor Stevens does not mention any grade as the probable maximum from the summit of Cabot's Pass to Puget Sound. The extent of country adapted to cultivation, and the facilities for wood and water, are not par-

ticularly alluded to. At the date of Governor Stevens' last communication (December 5,) the finished drawings and estimates had not been made for any portion of the work. The explorations west of the Cascade range are not terminated. The reports of those sent to guage the snows had not been received, nor of the party left to finish the survey of the Missouri River, nor the one to run a line from St. Mary's to Fort Hall.

REPORT OF THE SURVEY OF WALKER'S AND THE NEIGHBORING PASSES.

Depot Camp, Pose Creek, Aug. 31, 1853.

I have just returned here from a twenty days' examination of the various passes of the Sierra Nevada, and give the results so far.

I started from this point, which is eight miles north of Kern River, and went through Walker's Pass, the northernmost point on the Sierra, where it is supposed possible to carry a railroad across. Then reascending to the summit of the pass, I wished to follow the backbone of the mountain, southwardly, til it joined the coast range; thus necessarily seeing every depression in the ridge. Having thus ascertained the lowest points, I then intended to ascertain if they were accessible from both bases. This plan I followed most successfully, and I have now a good knowledge of these mountains—am certain that no pass exists (within the above limits) that I have not examined—and am now prepared to commence a survey of the best of them.

I regret to say that the difficulty of crossing the mountains is much greater than I anticipated; but I think there is no doubt of the practicability. I have been through eight passes, most of which are very bad, and I will briefly describe some of them. You must understand, however, that my opinions here expressed may be modified, when I get a more accurate knowledge from surveys.

With this understanding, I will commence by saying, that *Walker's Pass is out of the question.* To reach this we ascend Kern River (properly the Potum-ko-la) for some fifty miles, where a branch comes in from the east. This we ascend, in a wide and gently ascending valley, for some twelve miles, when we leave it, cross the divide, and enter the plain or basin beyond. The difficulties are: 1st, ascending Kern River; 2d, ascending to the summit from the valley of the branch; 3d, descending to the basin.

1st. On Kern River high mountains come down abruptly on each side, forming a canon of five or six miles in length, impassable for mules, and probably for footmen, since there is no Indian trail through it—and these mountains cannot be turned. Hence, to go by Kern River, an immense deal of cutting, blasting, &c., would have to be done. Rock, granite. This river falls in the fifty miles, fifty feet to the mile on an average.

2d. The ascent to the summit for five miles is over 300 feet to the mile, and rugged rocky mountains on each side, cut up by precipitous ravines, prevent a winding course to gain distance.

3d. The descent from the summit to the basin is eight miles, and over 250 feet to the mile. The altitude of Walker's Pass is over 4,500 feet above the Tulare Valley, and over 5,000 above the sea. The basin is 2,500 feet above the valley.

Proceeding south, the next pass worthy of note is one never before passed through, so far as I can ascertain. The ascent from the basin is uniform, and not more than a hundred feet to the mile, arriving at the lowest point but one of the Sierra Nevada—3,100 feet above the Tulare Valley. A creek runs from the summit to the valley, but the descent for ten miles is 300 feet to the mile. Possibly, by winding in the hills, a more gradual descent could be found—still it would be difficult, and very expensive. Instead of following this creek we can follow along the crest of the mountain,

on nearly a level for fifteen miles, and then descend nearly the whole vertical distance in three or four miles. If inclined plane, with stationary engines, have to be resorted to, this would be a good point.

Still further south there are two passes leading into the head of the Tulare Valley, at a place called Tejon. A wagon road passes through one, which is beginning to be known as the Tejon Pass, and it is the worst wagon road I ever saw. The pass fortunately presents some good features for a railroad. Two small streams run from near the summit—one into the basin, the other into the Tejon—but their sources are separated by a narrow divide over 1,500 feet high. I have great hope that a survey will show that should this ridge be tunnelled, the road can pass up one creek, through the tunnel, and down the other. The summit of the Tejon Pass is 4,500 feet above the Tulare Valley.

The other pass coming into the Tejon is called the Canada de las Uvas (grape ravine). In this a small brook descends into the Tejon, 1,400 feet in 4 miles, while the rest of the pass is of gentle ascent and descent. The summit is 3,100 feet above the Tulare Valley—the same height as that of the passes before mentioned. Two modes would naturally suggest themselves for making a road through this pass. One, a system of inclined planes, with stationary engines over the 4 miles above mentioned; a second, by following along the side hills. Before I express an opinion on these points, I must wait till a survey of the pass is made. I intend to leave here to-morrow for the Tejon, 25 miles distant, and shall run a line of levels through the Tejon Pass and the Canada de las Uvas; at the same time making an accurate sketch of the hills and ravines on each side. From the data thus obtained, I shall be able to give full information on the subject. So much for passes.

R. S. WILLIAMSON.

The little that was received from Captain Gunnison, previous to his massacre, is not favorable for the route he was commissioned to explore, which was what is termed Benton's route, by way of the Huerfano and the Coochi-to-pee Pass. The information furnished by him is altogether too meagre to be of any particular value.

The survey of the route upon the 35th parallel was intrusted to Lieut. Whipple. When last heard from, he was at the Zuni villages. We give his dispatch, though not very intelligibly, for want of a map of the route.

Camp No. 70, near Pueblo Zuni, Nov. 25.

Colonel:—I have the honor to inclose a geological and a pencilled sketch of a general profile of our route from Fort Smith to Rio del Norte. The vertical scale of the latter not being exaggerated, the minor deflections are unappreciable. However, it may serve, like the rough topographical sketches already sent, in charge of Senor Don Ambrosio Armijo, to guard against a total loss of our work, in case, by any accident, the notes we carry should be destroyed. By examination, you may perceive that no great obstacle is opposed to the construction of a railway along the route traversed by the wagons, the profile of which is given from barometric observations, taken at every point wherever occurred a change in grade. This profile is, however, intended merely as the basis for a reconnoissance upon which the profile of deflections for a better route may be projected. Several such deviations have been made, but not yet represented upon the profile: one through a level prairie south of the road, and extending nearly from the Poteau to the San Bois; another passes a slightly undulating country, from the head waters of Coal Creek to the waters of Boggy, leaving the Shawnee villages north. It is a question, also, whether the Valley of

the Canadian should not be kept nearly the whole way to the mouth of Tummcari Creek, thus avoiding the ascent to the Llano estecado, and proceed to the Pecos, north of Anton Chico, where the canon is believed to be narrow enough to be spanned by a bridge. From Rio Pecos to the Valley of the Rio del Norte is, doubtless, the most expensive of the first division of our route. Still the ground is difficult only in comparison with that previously passed over. Two passes of the Rocky Mountains were examined; one leading by Rio Galisteo to the Pueblo de San Felipe, the other by Carmel Pass to Puebla de Isleta. The first makes a short deflection to the north, by which a blind man would never suspect the vicinity of a range of mountains. A branch of the Galisteo is encountered about 25 miles east of the mountain range, and makes a broad open valley, with a descent, unappreciable by the eye, to Rio del Norte. The Carmel Pass is more directly west, and its canon, with some slight cutting, will afford a good route. Debouching from the mountains, a wide arrayo, with a grade of about 50 or 60 feet to the mile, leads to Isleta. At these pueblos, San Felipe and Isleta, are found the two best crossings of the Rio del Norte. At both places the diluvium drift impinges upon each side of the river, affording natural abutments for a bridge. From the latter point the survey has been continued, with a sweep to the south, to ascend the Mesa, nearly 700 feet in height, which divides Rio del Norte from Rio Puerco. Thence we ascend Rio de Gallo to near its head waters, where parts the road leading to Fort Defiance. Sending a party to reconnoitre that route, we proceeded by the Canino del Obispo to our present camp, near the Zuni. Upon the route of the survey, towards the southern slope of the mountain, by a gradual ascent of about sixty feet to the mile, we arrived at the foot of the hill which forms the summit of the Sierra Madre. Here might be required a tunnel about a mile in length, which would reach a similar ravine upon the Pacific side, leading by a beautiful slope, not exceeding in any part 61 feet to the mile, three days journey to Zuni. The party which explored the northern pass reports much more favorably. The summit is said to have been passed unperceived, and a grade of 25 feet to the mile will conduct from Ojo Azul, which flows towards the Gulf of Mexico to Rio Puerco of the West, which, emptying into the Rio Colorado, seeks the Pacific Ocean. We are, therefore, now upon the Pacific waters, having found excellent passes through the range of Rocky Mountains and the Sierra Madre. Timber for the construction of a railroad is abundant, from the Choctaw nation to Walnut and Deer Creeks, also from Rio Pecos to Sandia Mountain, and in the Sierra Madre. For masonry, there is excellent material over the whole route. Coal is abundant in the Choctaw nation, on Rio Galisteo, in the Carmel canon, on Rio Puerco, and at Ojo de Gallow. Extensive beds of gypsum also occur in various localities. From the headquarters of the Washita, which approach within two or three miles of the Canadian, an excellent route for a railway extends east-southeast as far as that river was followed by us. Well-wooded valleys, flowing streams, fertile soil, and charming climate, all invite the emigrant thither. To pursue the stream to its mouth, and thence to New-Orleans, would, doubtless, form one of the main branches of a railway to California by way of the Canadian. The appearance of the country north of the Canadian, in the direction towards the western part of the Missouri, showed nothing to lead us to infer greater obstacles in the construction of a branch from the great bend of the Canadian to Springfield than we had found on our route. Indeed, our geologist, Mr. Marron, having previously paid particular attention to the geological character of that section of country, assures me that it is highly favorable for the object proposed. Without doubt, therefore, a main branch of this road would lead to St. Louis. Water, for camping purposes, on the whole route from Fort Smith to this place, has failed us but once. That was on the Sierra Madre, where water

could be easily obtained by tanks, in others by aqueducts, while in a few places Artesian wells may be resorted to with greater advantage. To-morrow we proceed hence, taking a due west course, which we hope will lead us to the Pacific, in time to lay before Congress a more full report in February next.

In great haste, I remain, very respectfully,
Your obedient servant,

A. W. WHIPPLE,
First Lieut. Corps Topographical Engineers.

Colonel J. J. ABERT.

Art. XII.—THE MARITIME CONFERENCE OF NATIONS AT BRUSSELS.

WITHOUT herald—without clamor—without attracting even ordinary attention—a convention assembled at Brussels last autumn to discuss a measure of peace, while the sovereigns of Europe were agitating the proposition of a congress for determining a similar question. But how different were the motives that prompted these convocations, and how much at variance were the objects to be achieved, though ostensibly urged by the same benevolent considerations! One was a convention, having in view, by a conference of sentiment, the improvement of one of the physical auxiliaries of commerce; the other was a congress, having in view, by a conference of sentiment, the improvement of one of the primary stimulants of commerce. One proposed to generalize knowledge, by putting in the hands of the mariner an instrument for avoiding shoals and hidden rocks, and for steering his vessel, in all kinds of weather, with the best advantage, and the least possible delay and danger; the other proposed no utilize knowledge, by teaching the mariner, not how to load a broadside with the wisest economy, and to reef a sail in the time of action, but how to convert navies into merchantmen, and marines into alert seamen. The latter, after much flourish and extravagant preparation, never met, never referred back to themselves the great question which they had agitated, namely, whether issues, involving wars and hostile demonstrations, should, in obedience to the requirements of the age, and in conformity with the interests of mankind, be settled by arbitrament, or still be determined by the custom of the sword. We find, not as a result, but as a consequence of the neglect, Europe convulsed with sanguinary throes. The first, without pomp and display, did meet, and did refer back to themselves the grave matters they held in trust, and the result we have embraced in a volume before us, entitled, "Explanations and Sailing Directions to accompany the Wind and Current Charts, &c., &c., by M. F. Maury, LL. D., Lieut. U. S. N., Washington, 1854."

The Belgian conference, although its transactions do not appear to have elicited that attention which they deserved, forms a feature in maritime connections, that must prove of as much benefit to science, as advantageous in effecting fraternal relations among all classes, whose affairs or interests are confined principally, or relate indirectly, to the hazards of the sea. Thus the moral weight of this conference, in laying the foundation of mutual interchange, in a matter that, in a greater or less degree, influences the political action and controls the civil progress of a nation, cannot be over-estimated. We may be inclined to see in it only a present evidence of good—a conventional reciprocity, by which one or two classs only are to derive partial benefit—underwriters, and that abstract element of government usually called the Head. But if we view the subject fairly, we will readily perceive that the operation of the system of interchange adopted does not stop here, nor that its influence will be circumscribed by the simple necessity or expediency of the hour. Its direct tendency is, to merge two powerful interests into one practical, paramount interest, thus imparting to the scheme all the force, vitality, and strength of three separate and distinct agents. It brings science into an embrace with wealth, and their affiliation has the common object of protecting property, spreading information, and concerting for the public weal.

The Brussels conference represented ten nations—the United States, England, France, Belgium, Holland, Denmark, Russia, Sweden, Norway, and Portugal. It was understood that the representatives should meet and discuss whatever questions might be brought before them, without pledging the faith of their respective governments to confirm their proceedings; but there can be no doubt that there will be a general, if not a universal approval of their proceedings. The proposition originated on this side of the Atlantic, and Mr. Maury was judiciously chosen to represent the United States. The marks of distinguished favor conferred upon him by his associates in council, show the high esteem in which his opinions as a scientific scholar, and his deportment as a man, were held.

An improvement of the ordinary sea route between distant countries had long engaged the attention of commercial men, and both individuals and nations had profited by the advances which this science had made through a more correct knowledge of the prevailing winds and currents of the ocean. But experience had shown that this science, if it did not now stand fast, was at least greatly impeded by the want of a more extended co-operation in the acquirement of those facts which were necessary to lead to a more correct knowledge of the laws which govern the circulation of the atmosphere, and control the currents of the ocean; and that the subject could not receive ample jus-

tice, or even such a measure of it as was commensurate with the importance of its results, until all nations should concur in one general effort for its perfection. But, could that happy event be brought about, the navigator would learn with certainty how to count upon the winds and currents in his track, and to turn to the best advantage the experience of his predecessors.

Pondering the whole subject for years, Mr. Maury succeeded in vindicating, by practical experiments and severe tests, the accuracy of his deductions, which passed into confirmed theories, and finally became laws. The government was induced to patronize his attempts to interest other nations equally with our own in establishing something like a reciprocal system to meet the great wants of the navigator, in the particulars mentioned, and the Belgian conference was ultimately brought about.

What this conference effected may be briefly stated; the collateral advantages are not so easily summed up. It agreed in recommending the schedule of a log, which masters of vessels will fill up; and, by the plan of interchange adopted, the information contained in this log is distributed to the nations forming the league, and among the maritime classes that may voluntarily use the schedule. It should be remarked, that it is only incumbent upon the commanders of government vessels to substitute it, and not upon masters of the mercantile marine. The form of the log is as follows:—

1st	column.	Date.
2d	"	Hour.
3d	"	Latitude.
3′	"	" dead reckoning.
4th	"	Longitude observed.
4′	"	" dead reckoning.
5th	"	Direction of currents.
5′	"	Velocity of currents.
6th	"	Magnetic variation observed.
7th	"	Direction of winds.
7′	"	Force of winds.
8th	"	Forms and directions of clouds.
9th	"	Amount of clouds.
10th	"	Hours of rain.
11th	"	Barometer
11′	"	Thermometer attached.
12th	"	Thermometer, dry bulb.
12′	"	Thermometer, wet bulb.
13th	"	Water at surface, (temperature.)
13′	"	" " (specific gravity.)
14th	"	Water at depths, (temperature.)
14′	"	" " (specific gravity.)
15th	"	Remarks.

In glancing over the proceedings of the Conference, one is struck with the singular unanimity that characterized the sentiment of the body, and the freedom with which each member admittted the neglect of their government to supply themselves

with the information so needful to the improvement of navigation. But perhaps no previous age had been ripe for the reform. It is very certain, that hitherto the principal attention bestowed upon ocean craft has been with reference to speed, capacity, and their resistance to the balls of the enemy; and that in all human estimates, neither the channels of the ocean, the phenomena of the atmosphere, nor the tempests of nature, have had much to do with ship building, ship sailing, or ship government. If by chance a rock were discovered in some known or unknown sea, a note might or might not be made of the fact on the vessel's log; but its exact location remained as ever a matter of doubt; and as for winds and currents, their existence were acknowledged, but their courses and their laws totally disregarded. Space might be devoted with profit to the consideration of the imperfections which exist in connection with the science of navigation, and the instruments that are used for determining meteorological questions. The Conference avoided discussing these topics, although allusion was made to them. It is probable, however, now that a practical effort has been made to improve the science, that not only will navigation itself derive manifold advantages from the system of inquiry adopted, but that improvement will be carried to the extent of remodelling and perfecting the instruments themselves.

Art. XIII.—THE COMMERCE OF PORTO RICO.

THIS Island, in its fertility and institutions similar to Cuba, numbers about 400,000 inhabitants, the tenth part of which being slaves. Of the territorial extent, amounting to an area of 550,000 acres, the fourth part only is under cultivation. We translate the following from foreign reports.

The total Imports, inclusive of 396,192 Pesos* in Entrepot, amounted to,

	P.	C.
Spanish vessels under Spanish flag,	2,030,943	53
Do. " foreign "	3	50
Foreign " " Spanish "	2,122,784	82
Do. " foreign "	2,144,663	80
1852	6,298,395	65
1851	6,073,870	02

The Exports were, 4,652,339 Pesos, inclusive of 226,512 Pesos of the Entrepot, viz.:

	P.	C.
Spanish vessels under National flag	409,618	76
Foreign " Spanish "	349,718	84
" " Foreign "	3,893,002	28
1852	4,652,339	88
1851	5,761,974	93

* A Pesos, 8 Reales = 100 Cents.

The value of Imports under the	P.
Spanish flag amounted to	4,153,728
American " "	1,126,404
Bremen " "	83,899
Danish " "	79,194
Dominican" "	1,306
French " "	163,970
Hamburg " "	19,595
Hanoverian flag "	846
Dutch " "	7,646
English " "	631,322
Oldenburg " "	11,245
Sardinian " "	2,931
Swedish " "	5,895
Venezuelian " "	10,413
Total in 1852,	6,298,395
" 1851,	6,073,870

The value of Exports under the	P.
Spanish flag amounted to	759,338
American " "	2,046,575
Bremen " "	192.986
Danish " "	151,480
Dominican" "	913
French " "	435,488
Hamburg " "	157,294
Hanoverian flag "	35,387
Dutch " "	11,412
English " "	689,546
Oldenburg " "	59,853
Sardinian " "	89,084
Swedish " "	10,727
Venezuelian " "	6,255
Total in 1852,	4,652,339
" 1851,	5,761,974

It appears herefrom, that in spite of all differential tariffs, the Spanish flag is scarcely furnishing to the trade of Porto Rico the third part of the number of vessels, and scarcely the fourth part of the number of tons; that if her imports amount indeed to 63 per cent., her exports however reach only 14 per cent. of the total amount.

There were imported into Porto Rico from the United States in

	P.
American vessels	971,802
English "	109,022
Bremen "	35,425
Spanish "	33,990
Danish "	22,099
Hanoverian "	846
Total in 1852	1,173,184
" 1851	1,187,847

The Exports from Porto Rico to the United States:

	P.
American vessels, goods in value of	2,043,237
English " "	372,016
Danish " "	38,674
Hollandish " "	5,223
Total in 1852	2,459,151
" 1851	2,518,802

The Exports of the most important products of the Island consisted, in

	1852.	1851.
Rum, Bocoyes	113½	347½
Cotton, lbs	318,792	366,581
Sugar, "	93,631,396	118,416,304
Coffee, "	11,370,763	12,111,971
Leather, "	508,820	632,706
Melasse, Bocoyes	45,977	31,960
Tobacco, "	5,565,739	6,478,084

The revenue of customs gave,

	Imports. P. C.	Exports. P. C.	Tonnage, Anchorage, etc. P. C.	Total. P. C.
1851.....	975,000 02.....	289 66.....	94,129 02.....	1,069,418 68
1852.....	1,138,315 56.....	8,101 82.....	112,756 31.....	1,259,173 69

The following vessels of the different countries had, in 1852, entered or left the harbor of Porto Rico:—

	Entered. Number of vessels.	Entered. Tons.	Left. Number of vessels.	Left. Tons.
Spanish	564	46,659½	489	43,395½
American	447	73,441¾	428	70,981¼
Bremen	24	4,703	24	4,587
Danish	31	4,712½	26	3,711
Dominican	3	215½	3	215½
French	91	8,171¼	90	8,129½
Hamburg	12	2,325	12	2,325
Hanoverian	3	710	3	710
Hollandish	12	718	12	718
English	239	29,941	240	29,769¾
Oldenburg	8	1,762½	8	1,762½
Sardinian	15	1,015¾	5	1,022¾
Swedish	5	910	5	910
Venezuela	8	549½	7	528
1852	1,452	175,836½	1,352	168,766
1851	1,324	160,586½	1,209	154,042¾

Art. XIV.—INTERNAL IMPROVEMENT BY GOVERNMENT.—SLAVERY.

We have read with satisfaction the very able speeches delivered in Congress by the Hon. L. M. Keith, and the Hon. P. S. Brooks, of South Carolina, upon these subjects, and marked a passage from each for insertion in the Review. The material which they furnish will be found instructive and valuable by our readers.

Our first extract will be from Mr. Keith:—

Now, sir, let us examine whether internal improvements made by the Federal Government will secure—1st, economy in laying taxes; 2d, in collecting taxes; 3d, a successful application of them.

The taxes being spread over a vast surface, and drawn by indirect and circuitous means, will prevent lively watchfulness, and a full understanding of their imposition. With powerful interests struggling to enrich themselves by increasing the taxes, and a band of mercenary partisans to satisfy, it will be to the benefit of the Government to be extravagant in taxation. Watchfulness is lost in the diffusion of the burden, and accountability is drowned in the clamor of struggling factions. Have we had economy in taxation? Read the history of our legislation, and you will find it to be one of spoliation and wrong. Avarice, upon power and cunning, has begotten extravagance, and the child has pandered to the lusts of its hateful parents. History shows that internal improvements by the Federal Government are destitute of the commonest requirements of economy.

Secondly. Will it secure economy in collecting taxes? With intriguing interests to be enriched by lavish expenditures, and a cohort of needy and adventurous supporters to be supplied with places and fed out of the Treasury, is it reasonable to suppose that the number of places will be diminished, and the money power of the Government willingly reduced? The history of the past throws light upon the future.

Thirdly. Will it secure a successful application of the taxes? Will the Federal Government possess the necessary local information? and will there be the necessary watchfulness and accountability in the expenditure of the funds? and, also, a constant and unfailing supply? I think I have shown that it will not have the necessary information, as this must be derived from residence, and daily and interested observation. There will not be that watchfulness and accountability which are indispensable, because the taxes will be diffused over too great a surface; and the Government will not inspect closely the accounts of needy and clamorous partisans. Will there be a constant and unfailing supply? Will $200,000,000 to be struggled for in every presidential canvass, with splendid offices and high honors at stake, will not local applications be disregarded when they interfere with the great combinations necessary to success in such a struggle? Have they not hitherto been disregarded? The very materials which have been bought by the Federal Government to prosecute works of internal improvement have decayed, even while Congress was harassed with applications for further aid. Gigantic enterprises have been begun in every quarter of the Union, and been allowed to crumble and waste away while their recipients were clamoring at the doors of the Federal exchequer.

Never yet has the Government completed a single great work of internal improvement. It has lavished its millions, torn from toil and thrift, but it has only scattered over the land crumbling monuments of blasted enterprise, like broken columns in old Rome, telling the tale of a colossal and ruthless central despotism. With the Government, and its splendid prizes, fought for by powerful and desperate parties, pledges have been recklessly made and violated, and legislation subsidized to mere party success. Thus appropriations for internal improvement have been spasmodic and uncertain, and hopeful enterprises have wasted into ruin, while our resources have been fruitlessly squandered. As the causes still subsist, so, too, the effects must continue hereafter.

Sir, have the West and Southwest no interest in this question, in an agricultural point of view? The agricultural staples of a country are the basis of taxation. Every great shock and convulsion have borne with especial heaviness upon that interest. Sir, in this Government the weight of taxation presses upon the planting and agricultural States. Reckless spoliation and lavish expenditure have eaten into their substance. Look at the table of production, and tell me if it is not the special interest of the South and West to insure low taxes and an economical expenditure? I here submit an abstract:—

ESTIMATED VALUE OF AGRICULTURAL PRODUCTIONS OF THE UNITED STATES, AND AVERAGE AMOUNT PER HEAD.

Names of States or Sections.	Aggregate Population.	Estimated annual value of live stock and slaughtered animals.	Estimated value of other agricultural productions.	Estimated aggregate value of all productions included in the census.	Average amount per head.
New England States	2,728,116	$12,574,152	$79,694,131	$92,268,283	$33 82
Middle States, (not including District of Columbia)	6,573,301	33,809,538	241,841,932	275,651,270	41 93
Tennessee, Mississippi, Arkansas, and Louisiana	2,336,902	16,597,521	121,625,028	138,222,549	59 14
Missouri, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa	6,379,923	39,360,502	194,592,098	233,952,600	36 67

The values above given are based upon the prices at the place of production. Mr. Tucker, in his work on the Progress of the United States, states the average value of agricultural productions to each person, in 1840, as follows, viz.: In the New-England States, $33 45; Middle States, $41 57; Southwestern States, $48 76; Northwestern States, $27 41.

For this table I am indebted to Mr. De Bow, of the Census Office, and have also consulted the volumes of his REVIEW and INDUSTRIAL RESOURCES, where these and other kindred topics are elaborately discussed and presented.

The following is from the speech of Mr. Brooks:—

The institution of slavery, which it is so fashionable now to decry, has been the greatest of blessings to this entire country. At the North it has served as a vent for fanaticism, communism, and all those secretions of a morbid sentimentality, which, without this safety-valve, would long since have resulted in a social explosion; and which will be as cruel to the pure and the good, when it does come, as it is certain in the future. From Maine to Texas the slaves have been the pioneers of civilization. The forest has bowed before their march, the earth yielded its rich harvest to their labor, and given us a commerce which excites the admiration and jealousy of the world. The power of commerce is greater than that of armies and navies. England saw wherein our strength lay, and endeavored to shear us of our power, by her experiment in the West Indies, which involved the loss of millions of dollars to herself, and the miserable degradation of the very race which, with hypocritical philanthropy, she professed a desire to elevate and benefit.

Every section of this confederacy is now in the enjoyment of the rich rewards of the labor of the slave. He gives employment to the shipping interest of the East, wealth to the manufacturer of the North, and a market for the hemp and live-stock of the West.

The market of the slave States is the best and most varied upon earth. In whatever section either of the great Southern staples are grown, that particular staple is grown to the exclusion of the others. If raised in Virginia, cotton and rice are to be bought; if in the Carolinas and Georgia, tobacco and sugar; if in the extreme South and Southwest, rice and tobacco. We, of the South, are compelled to secure by exchange one or the other of even these few staples; while, by an injudicious policy, the slave States are dependent for every other article in the wide field of commerce upon other sections than our own. Not only do our slaves secure to the free States the best home market upon earth, but, sir, they are at this moment paying, by the fruits of their labor, full two-thirds of the revenue of this Government.

It appears, from the report of the Secretary of the Treasury, ending June 30, 1852, (which is the last which has been published,) that the total revenue of the country was $49,728,386.

Of this amount was received from the sale of public lands.....	$2,389,060
From duties upon imports.....	47,339,326
	$49,728,386

It is a generally admitted principle of commercial law, that the amount of imports is regulated by the amount of exports, and since our revenue is raised almost wholly from duties upon imports, it follows, if it can be shown that two-thirds of the domestic exports of this country are the products of slave labor, that the proposition is sustained, that two-thirds of the entire revenue from imports is paid by the labor of slaves.

The total value of our domestic exports, in 1852, was $192,360,984.

Of this amount, cotton was exported to the value of	$87,955,732
Tobacco	10,031,283
Rice	2,471,029
Sugar	173,978
Molasses	13,163
Snuff and tobacco (raw material)	416,000
Manufactured cottons (raw material)	3,000,000
Gold and silver	500,000
Naval stores	800,000
These alone making	$105,371,185
The probable proportional amount of other domestic exports from slave States is presumed to be about	21,030,506
Making total Southern productions	$126,401,691

The exports which were produced in all the non-slaveholding States may be stated as follows:—

Labor bestowed on refining sugar, on snuff, on tobacco, on cotton goods, &c.	$5,572,773
Proportion of all other domestic exports	60,394,520
Total Northern productions	$65,967,293
Giving an excess in favor of the slaves States of	$60,434,398

How much of southern produce is manufactured at the north and exported as northern products, such as the cotton, which they export in their wool, and in fur, in hats, and cordage, and flax, and thread, and saddlery, and wearing apparel, and umbrellas, and sun-shades, and in books and maps, &c., &c., such as spirits from molasses, it is as impossible for me as for the purchaser to ascertain. But enough has been shown to prove the indebtedness of every quarter of the Union to the humble slaves.

But, sir, I propose to show that other debts of gratitude are due from the north to the institution of slavery.

As great as is the disproportion of the exports from the slave and the non-slaveholding States, that disproportion is immeasurably increased in the amount of duties received in the respective ports of the North and South.

The general average of duties in 1852 was a fraction over twenty-two per centum, and the total of imports amounted to $212,945,442.

Of the duties collected, there were received in Northern ports	$41,871,936
And in Southern ports but	5,467,390
Making the amount received from imports	$47,339,326

Now, sir, if there be any truth in the doctrine that the producer of exports pays in reality the duties upon the imports, although the imports be credited to northern ports, the account between the two sections will stand thus:—That while the Southern States produce *two-thirds* of the entire domestic productions of the country, we *collect* but *one-ninth* of the duties on imports. Nor is this all; for, according to the record, it appears that four-fifths of the public moneys thus collected have been appropriated to the non-slaveholding States for Government purposes and internal improvements, (including bounties to fishermen, to light-houses, buoys, river and harbor improvements, custom-house expenditures, public buildings, mail routes, &c.)

But again:—The total value of the domestic and foreign exports of the United States in the year 1852, was $209,658,386, and the total value of fo-

reign imports $212,945,442, making an aggregate of $422,603,808. In the carriage of this amount of goods to and from foreign countries were employed 8,887 American vessels, with a capacity of 3,230,590 tons, and employing 115,253 men, and 1,780 boys. How many of these vessels or of their crews belong to the South, it is unnecessary to ask.

I have not been able to procure full reports for 1853; but the duties accruing on imported merchandise show an increase over those of 1852 of $13,625,598, and, as a consequence, a proportional increase of the value of slave labor to the people of the North.

Art. XV.—MARINE DISASTERS IN 1853.

A LIST of casualties to British shipping has been compiled from Lloyd's List, and laid before Parliament in a blue book. We find that during the last four years there happened at sea, 12,363 disasters, varying in magnitude from a total shipwreck to a slight collision. Some of these items are very striking. Thus, the single item that "the Honest Endeavor sailed from Hull, Nova Scotia bound, and had not been heard of for three years," fails to arrest the attention so forcibly as when one is startled with the astonishing intelligence that 204 ships and their crews departed from our various ports within the four years alluded to, and not one of them was ever heard of again.

Analysis of the 12,363 *casualties reported to Lloyd's for the four years ending* 1850.

	Canvas.
Driven ashore by stress of weather—vessels and cargoes partially or totally lost	5,117
Collision—vessels obliged to run into port in a sinking state	2,665
Wrecked	2,295
Foundered	883
Abandoned, waterlogged, dismasted, on fire—crew taking to boats	679
Sailed and never heard of again	204
Burnt by accident	87
Damaged by ice	51
Burnt by cargoes igniting—coals, 11; flax, 1; wool, 1; cotton, 3	16
Struck by lightning and damaged	15
Blown up—by coal dust, 7; spontaneous combustion, 1; gas, 4; powder, 1	13
Plundered by pirates and destroyed	13
Taken possession of by convicts and wrecked	1
Struck by a whale and abandoned	1
Struck by a waterspout	1
Total	12,041

	Steam.
Driven ashore, but got off again	103
Collision at sea	146
Wrecked	17
Foundered	30
Burnt	8
Partially burnt	7
Abandoned at sea	2
Capsized	1
Put into a port in a sinking state	2
Sunk, and raised again	0
Sailed, and never heard of again	1
Total	322

One consoling fact in this terrible chronicle is, that but few accidents have occurred to ships ably manned and commanded; out of 12,000 and odd casualties, only 64 are recorded against ships of 700 tons and upwards. This is not merely in consequence of their size, but simply because in most large vessels

greater care is shown in the selection of a crew, and in the appointment of a competent commander. Nearly all the losses have been sustained by vessels ranging from 90 to 500 tons, because these are the description of craft most likely to sail economically!—are often-weak handed, and liable to be commanded by men possessing few recommendations for filling the office of captain, except being part owner.

In reference to the British and Australian shipping, we find that it doubled itself in 1852, and 501 vessels were dispatched that year: The average passage in the Liverpool ships was reduced from 120 days in 1841, to 110 in 1852, the shortest being made by the Marco Polo, in 75 days. In 1853, the statistics of Australian navigation are known up to the 30th of September last: there seems to be every reason for supposing that the trade will again double itself, for 804 ships had been dispatched in the first nine months of the year. This gives an excess of about 67,000 tons on the whole of the trade of the year 1852. Accounts have already been received of 234 of these last vessels, and the average passages were about 105½ days, being a clear gain of five days upon the average passages of the preceding year. The Liverpool ships have beaten the London ships in this extraordinary race to the antipodes by 20 days upon the whole average, and the shortest passages were again made from Liverpool, by the celebrated Marco Polo, and her sister ship the Indian Queen, the first in 78 days, and the last in 82 days; and it is supposed that when the returns for the whole year (1853) are completed, the average passage of the Liverpool ships will be less than 100 days.

The loss of life in the last four years can only be guessed at, as it often happens that the number of the ship's company is not known. The only means of approximating to the truth, is to allow a certain number of hands to a certain tonnage, and by this process a tolerably near guess may be made. According, then, to a certain known scale of manning merchant vessels, four men and a boy being given to every 100 tons, it would seem that the annual loss of life by casualties at sea, reported to Lloyd's, average about 1,250, the gross number for the four years being 4,298. These, however, are conjectural quantities, and must be received with caution. More certainty is shown in the statistics of ships destroyed by fire; and considering the inflammable nature of the materials of which ships and their cargoes are often composed, the number annually destroyed is less than might have been supposed. Of those vessels which were burnt in consequence of the cargo igniting, the majority were laden with coals, and of the thirteen blown up, seven (7) of the accidents are attributed to coal-dust, four (4) to gas, one (1) to spontaneous combustion, and only one (1) to powder. The few acci-

dents to steam vessels during the same period of four years, proves the comparative safety with which these vessels perform their voyages; and although it is difficult to draw any other than conjectural comparison between canvas and steam, in consequence of the disparity of numbers of the two classes of ships, yet, if we take into consideration the repeated trips a steamer makes in the course of a year, when compared with a sailing vessel, we shall find that the difference is more apparent than real. But admitting that a great numerical superiority exists on the side of sailing vessels, still the casualties reported against steamers appear very trifling.

It seems that the greatest number of fatal accidents that happen to steamers, arise from their foundering. Thirty of such events occur, while only seventeen were wrecked. In canvas ships, the average appears to be that three vessels are totally wrecked where one founders—but in steamers this is reversed: for, if these statistics can be relied on, two steamers founder for every one that is wrecked. This is, perhaps, owing to the lumbering weight of the machinery, which, in a disabled steamer, must act very detrimentally in a gale of wind. It does not appear that a steamer blew up during the period of four years, and that only eight were totally destroyed by fire, and seven partially burnt. During the same period, there were 116 sailing vessels burnt and blown up, and these singular statistics would seem to indicate that there is less chance of being blown up in a steamer than when under canvas, and paradoxical as it may appear, that there is more to fear from coal-dust than powder.

These remarks, however, must be received with caution, for the list of "casualties" is incomplete, and only contains those reported to Lloyd's, and can only be accepted as a rough guess at the losses sustained by Great Britain and a few other maritime States. These losses, however, must be tremendous, for if we compute the number of wrecks at 1,000 per annum, this gives 4,000 for the four years; an amount not over the mark. But as the tonnage is not set down against every ship, it is impossible to get at the dimensions of the vessels wrecked, abandoned, foundered, burnt, blown up, or otherwise destroyed, consequently the money value of the lost ships cannot be known. Conjectural quantities must therefore be taken. Let us say, then, that these vessels averaged 250 tons each, which is perhaps a medium figure; yet this would give the astonishing number of 1,000,000 tons of shipping lost in four years; and if we estimate the cost of building ships at 10*l.* per ton, the sum required for their construction would be 10,000,000*l.*, an amount that seems to warrant that they could not all have been insured, particularly if to this great sum be added the loss of their cargoes—the sum total of which we leave to more daring arithme-

ticians to determine. And yet there is every reason to suppose that this enormous loss goes on year after year; and this country, to which the greater number of the wrecked vessels appear to belong, not only sustains it with impunity, but, if we may believe statistics, is thriving beyond any kingdom upon the face of the earth.

Art. XVI.—THE AMERICAN FISHERIES.*

No part of the Annual Report on the Finances for 1852–'53, communicated to Congress by the Secretary of the Treasury on the 15th of January last, is of greater interest than that part of it devoted to the American Fisheries, from the pen of Lorenzo Sabine, Member of Congress from Massachusetts. Mr. Sabine is known to the literary world as the author of the History of the Loyalists, and is also known by his occasional contributions to the *North American Review*. Having long resided, in former years, in the State of Maine, and among the fishermen who frequent the Eastern waters, and having long been familiar with the history and progress of the American Fisheries, Mr. Sabine was appropriately selected by the Treasury Department to prepare that portion of the Treasury Report which refers to the Fishery question. He gives a careful and impartial history of the several branches of the Fisheries; their connection with the French and British Governments, and the rights of the United States in reference thereto, and statistics of the vessels, tonnage, and men employed in the trade—with the exports and imports.

The Report has a fault which is too common with American public documents, and one that detracts much from their value, viz.: the want of an index, or table of contents. An alphabetical index to the subjects treated of is highly essential to every public document; but in the present case there is neither title-page, index, nor table of contents.

The author states that more than twenty years since he formed the design of writing a work on the American Fisheries, and then commenced the collection of proper materials for this purpose. His intention embraced the whale fishing in our distant seas—the fisheries of our own coasts, lakes and rivers: with those which our citizens are entitled to prosecute within British jurisdiction, under treaty stipulations; and finally, the fisheries of the Indian tribes within the United States. The present volume combines a portion only of the design contemplated, and we hope that some one of our prominent publishing firms may be induced to secure the remainder of Mr. Sabine's work for publication. A complete history of the American Fisheries

* From the *New-York Courier & Enquirer*.

would be a very acceptable production. Such a history should, properly, be issued under the auspices of Congress; or, at least, under those of the Historical Society of this or some other State.

The French were the first European codfishers in the American seas. There is a tradition prevailing that the fishermen of Biscay visited Newfoundland before the time of Columbus; but it is certain that the Newfoundland fisheries were known as early as the year 1504. Soon after the discoveries of Cabot, vessels wearing the flags of France, England, Spain and Portugal, embarked in the codfishery, and the *fish mania* became so prevalent and profitable, that many persons of high rank became shareholders in the new fishing adventures.

In the years 1508–'9, Thomas Aubert came from Dieppe to Newfoundland, and explored the River St. Lawrence. Eight or nine years after, (1517,) fifty ships or more, of different nations, were employed in the fisheries in that region.

In 1527 an English captain found in the harbor of St. John eleven sail of Norman and one Briton vessel engaged in the fisheries, and in 1534 Jacques Cartier was intrusted with an expedition to the fishing grounds by Francis I., of France. The result of his observations was published on his return. In 1540 the French had establishments on shore connected with the fisheries, and in the year 1577 employed no less than 150 vessels in the trade.

Between the years 1577 and 1645, this branch of industry declined, owing to civil commotions in Europe. Both England and France claimed "Acadia," embracing the present colonies of Nova Scotia and New-Brunswick, with that portion of Maine lying between the Kennebec and St. Croix. The English claimed under the grant to Sir William Alexander, and the French under their patent to Demonts.

The treaty of St. Germain, in 1632, secured to France, temporarily, certain portions of Canada, Cape Breton and Nova Scotia. The latter was afterwards taken possession of by Cromwell. In 1667 this colony passed a second time to France, by the treaty of Breda. It was afterwards taken possession of by Sir William Phips, one of the *ancient mariners*, and held by Great Britain, until the peace of Ryswick, in 1697, when it was again assigned to France, and held by that government until the year 1710.

Down to this period the French fisheries had been more successful than those conducted by the English or American colonists. The latter afterwards took Louisburg from the French, but by the treaty of Aix-la-Chapelle, 1748, Cape Breton was again ceded to France.

In 1816, the French tonnage at Newfoundland was nearly

31,000, but in seven years afterwards was reduced one-half, and again resumed its importance, so that in 1829 the tonnage employed was 50,000. Their force in the Cod Fishery has been less during the present century than in the year 1744, when the French had 27,500 men and 564 vessels engaged in the trade, producing in that year 1,441,500 quintals, whereas the present number is estimated at about 12,000 men, and the annual product 450,000 quintals.

As early as the year 1600 there were 200 English vessels that left annually for the fishing grounds. In 1610, two charters were granted to companies engaged in the trade; in one of which Lord Bacon joined. In the charter to Lord Calvert, of Maryland, the freedom of the fisheries was expressly stipulated. The charter to Rhode Island by Charles II., and the patent to Sir Henry Roswell and others, of Massachusetts, also secured the fishing rights.

Charles II. endeavored to break up the trade of the Dutch in the fishing grounds, but their cause was strongly espoused by the noted Hugo Grotius.

The English colonists exported in 1814 about 1,200,000 quintals of Codfish, and large fortunes were made out of the trade, but the exports have declined or varied since; and at no period have equalled that of the year 1814, which was valued at $12,000,000. The product of the year 1849 (1,175,167 quintals) was valued at only $2,940,000.

Their exports of various periods during the last 150 years have been ascertained to be as follows, from Newfoundland:—

YEAR.	Quintals.	YEAR.	Quintals.
1716	106,952	1825	973,464
1763	493,654	1830	760,171
1774	759,877	1835	712,588
1785	591,276	1838	724,515
1799	453,337	1840	915,795
1805	526,380	1842	1,007,980
1814	1,200,000	1845	1,000,333
1815	1,180,661	1848	920,366
1820	899,729	1849	1,175,167

The Newfoundland Seal Fishery has produced less during the last few years than twenty years since. This trade originated in 1795, but was not prosecuted to any extent till the year 1814. The annual exports of the port of St. John have varied from 28,000 seal skins to 685,000. In the year 1847, the tonnage employed in the trade was 30,819, and the number of vessels 324.

The fishing trade of Prince Edward's Island, the Magdalen Island, Bay of Chaleurs, Labrador, and New-Brunswick, is on a limited scale.

In 1814, when a treaty of peace was under consideration between the United States and Great Britain, the Fishery question was one of the stumbling-blocks to a reconciliation between

the two governments. The English claimed that by the war, we had forfeited the fishing liberties that had been ceded us by treaty of 1783. But so important were considered these rights to our own citizens, that John Adams, in November, 1814, wrote:—

"All that I can say is, that I would continue this war *forever*, rather than surrender one acre of our territory, one iota of the fisheries, as established by the third article of the treaty of 1783, or one sailor impressed from any merchant ship."

We annex a table of the exports of Dried Codfish, and their value since 1803:—

YEAR.	Quintals.	Value.	YEAR.	Quintals.	Value.
1803	461,800	$1,620,000	1828	265,200	$819,000
1804	567,800	2,400,000	1829	294,700	747,000
1805	514,500	2,058,000	1830	229,700	530,000
1806	537,400	2,150,000	1831	230,500	625,000
1807	473,900	1,896,000	1832	250,500	749,000
1808	155,800	623,000	1833	249,600	713,000
1809	345,600	1,123,000	1834	253,100	630,000
1810	280,800	913,000	1835	287,700	783,000
1811	214,300	757,000	1836	240,700	746,000
1812	169,000	592,000	1837	188,900	588,000
1813	63,600	210,000	1838	206,000	626,000
1814	31,300	128,000	1839	208,700	709,000
1815	103,200	494,000	1840	211,400	541,000
1816	219,900	935,000	1841	252,200	602,000
1817	267,500	1,003,000	1842	256,000	567,000
1818	308,700	1,081,000	1843	174,200	381,000
1819	280,500	1,052,000	1844	271,600	699,000
1820	321,400	964,000	1845	288,300	803,000
1821	267,300	708,000	1846	277,400	699,000
1822	241,200	666,000	1847	258,800	659,000
1823	262,700	734,000	1848	206,500	609,000
1824	310,100	873,000	1849	197,400	419,000
1825	300,800	830,000	1850	168,600	365,000
1826	260,800	667,000	1851	151,000	367,000
1827	247,300	747,000			

In this trade (cod fishery) there were employed in 1851 vessels to the extent of 95,616 tons, viz.:—Maine, 45,528; New-Hampshire, 1,916; Massachusetts, 39,982; Rhode Island, 371; Connecticut, 6,785; New-York, 1,034. In 1789 the tonnage employed was 19,185; in 1810, 34,800; in 1820, 72,000; in 1830, 98,500; in 1834, 117,400 (the largest number within sixty years past); and in 1840, 76,000.

In the Mackerel Fishery were employed in the year 1851, as follows:—

STATE.	Vessels.	Tonnage.	Men and Boys.
Massachusetts	853	53,705	9,112
Maine	47	3,019	446
New-Hampshire	8	515	84
Rhode Island	7	479	71
Connecticut	23	1,551	255
Maryland	2	141	25
	940	59,410	9,993

Of this large number the port of Gloucester alone furnished 241 vessels, of 13,639 tons, and 2,326 men and boys. In that year the number of barrels imported was 353,000; in 1831, 404,000.

Mr. Sabine's Report concludes with a "Historical View of the Controversy as to the intent and meaning of the first article of the Convention of 1818."

The Census returns for 1850 exhibit the following:—

Statistics of the Cod and Mackerel Fisheries of Maine, New-Hampshire, Massachusetts, and Connecticut, June 1, 1850, as derived at the Census Office, Washington.

STATE.	Capital invested.	Men employed.	Amount of wages or earnings per month.	Quintals Codfish.	Barrels Mackerel.	Value of products of the fisheries.
Maine	$491,430	2,732	$51,829	173,094	15,941	$558,250
N. Hampshire	42,700	300	3,000	19,550	1,060	59,281
Massachusetts	2,127,885	7,917	137,995	215,170	236,468	2,188,441
Connecticut	279,300	911	16,082	No ret'n	No ret'n	261,683
	$2,941,315	11,860	$208,906	407,814	252,769	$3,067,655

Art. XVII.—RICE—ITS USES AND PRODUCTION.

Dr. Wilkinson, of the Parish of Plaquemine, Louisiana, has addressed a letter to a citizen of New-Orleans upon the subject of Rice, which has been copied into the *Delta*. We know Dr. Wilkinson to be a gentleman of great public spirit, practical intelligence, and large professional reputation, and therefore take pleasure in giving his letter to our readers:—

Feeling a deep interest in the culture of Rice, and believing it an object of great importance as a source of wealth to the State of Louisiana, my attention has been much directed, for several years past, to acquiring information relative to its nature, growth, &c. Regarding its native land, or the countries from whence it was imported into the United States, one would infer at once that Louisiana would be a favored spot for its propagation; and experience has already demonstrated the correctness of this supposition. Although to my apprehension it is in its incipient stage, as a staple product, since its great nutritive qualities, the simplicity of its cultivation, and the generous yield obtained by the producer of this grain, must render it an object of much importance in the increase of our population. Its easy digestibility renders it very suitable as an article of diet in warm countries—where it particularly luxuriates—and, by the subsistence of entire nations almost upon this substance alone, it seems eminently adapted to the support of human life. Its superiority to Indian corn as an article of food to the negroes who work in our lowlands,—or wherever there exists a tendency to what are commonly termed "bowel complaints,"—is to me very apparent. And I know owners of large sugar plantations who purchase rice largely as a substitute for corn-meal, as food for their slaves, under the impression that its use prevents, in a great degree, derangements of the digestive organs. A fact well known to me, is the comparative immunity of the slaves owned by rice planters from those diseases of the bowels which are very common among the negroes who work on sugar plantations—which immunity cannot be ascribed to peculiarity of location, since rice plantations and sugar plantations are here placed side by side, and sometimes alternate for miles together. The work on rice plantations is certainly less laborious than that on sugar plantations; but I cannot impute the superiority in health of the negroes on rice plantations to the exemption from heavy labor, since many rice planters hire their negroes, during the rolling season, to sugar planters, and hence subject them to the

most laborious portion of the whole of the operations on a sugar estate. But when it is found that sugar planters actually furnish rice to their negroes as a preservative of health, the inference becomes very strong, that the consumption of rice as a great proportion of the food of the slave on a rice plantation, has a material influence on the sanitary condition of the latter estates. While writing, a case presents itself to me, of which I was personally cognizant, where a gentleman of my acquaintance—a sugar planter—sent one of his negroes, who had for some time labored under diarrhœa, to reside on a small rice plantation, with the good effect of an entire restoration to health. My experience as a physician, which extends through a series of fourteen years of active practice, inclines me positively to the opinion that the ratio of mortality is decidedly greater on sugar plantations than upon rice plantations situated in similar localities. This fact is in opposition to general opinion, which opinion, however, is formed from information derived from the reports of the rice planters of Carolina. But whatever may prevail in Carolina, my information is too positive to admit of a doubt. An intimate acquaintance with the population engaged in each cultivation, and the constant opportunities of observation afforded while practising medicine, among both classes, confirm me in this conclusion. The cultivation of rice in this country is as tolerable in its effects upon the health of whites as that of any other agricultural product with which I am acquainted. A large population is here congregated in districts in which rice is the exclusive article of culture, and the census statistics of this parish exhibit as great a natural increase of population as can be found in any other section of the State, at least four-fifths of which white population live in the rice growing districts. The physical aspect of this region would lead to the supposition that similar effects upon health would ensue here upon the cultivation of rice as are met with in Carolina; but such is certainly not the case. The solution of this anomaly will doubtless yield to the investigation of intelligent observers; but as yet, scarcely any attention has been paid to this fact, or to any other matter connected with this important subject. Entertaining certain opinions relative to this peculiarity, I am free to confess that I have not that mass of facts in my possession which would warrant its ascription to any particular cause. It is very possible, however, that the water of the Mississippi, which is altogether used in irrigation, has some material agency in conducing to this immunity from disease. It is much to be regretted that the great natural advantages offered to the growers of rice in Southern Louisiana should have been so much neglected. This proceeeds probably from the absorbing interest which has been excited by the production of sugar, and by a false estimation (we believe) in the comparative value of the two crops. The present depressed condition of the sugar market may, and probably will, dispose to a more critical comparison of the value of these products. Diminishing the incentive to produce sugar, must have the effect of stimulating the production of rice, since these are the natural products of our climate. The fact, too, that the transition from sugar to rice involves no material change in the arrangements of the plantation, and requires not one-half the amount of stock usually employed on a sugar plantation, dispensing also with the series of expensive workmen and still more expensive machinery, may prove some inducement to an alteration of crops.

The prices at which rice lands range in Carolina sufficiently prove the value of the crop, and that it cannot be cultivated advantageously on a large scale is disproved by the existence in Carolina of immense rice plantations, working on each gangs of negroes equal in number to those employed in our largest sugar estates.

As an average crop, rice produces in Louisiana, probably, a greater revenue from the amount of land cultivated, and from the number of laborers employed, than is derived from the growth of any other grain. The adap-

tation of the lands on the Mississippi to the growth of rice, may be inferred from the fact that these lands may be cultivated continuously for any number of years in rice, without any diminution in the crop; provided they are freely watered and the rice properly weeded. This result obtains not only from the extraordinary richness of the soil, but also from the admirable quality of the water used, which comes laden with fertilizing particles of earthy matter, obtained from the washings of the Upper Mississippi and its numerous tributaries—a property which forever dispenses with the necessity of manuring or resting the land, and in the economy of its application defies imitation by any process of art. The happy order of nature in the adaptation of her multiform works to her various ends, is here shown by the annual supply of this valuable water to the cultivator of rice. Brought to his door as regularly as the blossoms of spring return, he has only to open his sluices and pour the rich flood upon his field; and upon nature's bounteous hand does he only rely to fill his granaries with the rich harvests of rice. Nor has he made one single effort to assist her providence, when the waters pass not above their natural banks. If they rise not to a level, from which they can be distributed upon the less devoted fields, no attempt is made to remedy the want—but a resigned submission is expressed to what is looked upon as an irremediable circumstance. Now this—and this only—from all that I can learn, is the only cause that need be apprehended of failure in the rice crop of Louisiana—an insufficient rise in the river, or the subsidence of the waters at an early date. This, then, to one who entertains the intention of cultivating rice, should be viewed as the only cause, here, of the failure in the crop. And the means of remedying this want, ought to be one of the first objects of his attention. Now, the facility with which this defect can be met is such, that it ought to be an opprobrium to the rice planters not to have overcome the obstacle before. A small water-wheel, say six or eight feet in diameter, which can be propelled by two horses or mules, and which it would not be necessary to run more than six hours per diem, would be amply sufficient to supply any field now under cultivation; or, should the enterprise or means of the planter lead him to a more extended cultivation, the application of a small engine to the propulsion of this wheel would probably prove an advantageous substitute for the horse power. At the season of the year when this irrigation is acquired in this parish, the water is always within twelve or fourteen inches of the point from which free irrigation can be obtained. Now, the ease with which water can be thrown to that height is very apparent to any one who is familiar with the operation of a draining wheel, when water is thrown sometimes four and five feet high. The cost of a horse draining machine to drain fifty acres, varies from one hundred and fifty dollars to two hundred and fifty dollars, which machine, I am satisfied, would supply water abundantly to an area of from one hundred and fifty to two hundred acres of rice land. Considering the case, then, by which this difficulty can be obviated, the rice cultivation, in this region, presents an ever plenteous crop, and a ready source of wealth, and we are happy to learn that individuals are already commencing preparations here on a large scale for its culture. The capacity of the Mississippi lands for the production of rice, may be judged of, when it is known that in numerous instances, abundant crops of this article have been made by simply scattering the seed on the surface of the ground, without any previous process of preparation, save that of burning off the grass. And even within a few days past I was told by two rice planters, that they had both tried this method with results entirely satisfactory to themselves. Now, viewing the effects which must accrue from an enlightened and studied system of cultivation, such as is pursued in the Carolinas, it is not too much to say, that the growth of rice in the State of Louisiana must be the most profitable crop of which we have knowledge.

A great mistake is made in supposing that the rice of Louisiana cannot be produced of equal quality with that of Carolina. Some crops which were grown last year in my immediate vicinity, exhibit as fine a quality of rice as any which I have seen imported into Louisiana from the above-mentioned States.

But it must be confessed that the generality of Louisiana rice is decidedly inferior to that produced in the Carolinas. This arises from two causes, both now easily remedied. One is the successive cultivation of the same seed from rice, which was originally inferior. The other exists in the imperfect manner hitherto adopted in the process of milling the rice. Thanks to the enterprise and patriotism of a few gentlemen of New-Orleans, opportunity is now presented to the planters of obtaining the choicest variety of Carolina seed, as well as the means of milling their rice by the most improved modern machinery, an acquisition which we hesitate not to say we believe will be productive of vast benefit to the agricultural community of our State, and to the numerous interests with which agriculture is associated. We have visited and examined the rice mill on St. Joseph street, in New-Orleans, with the greatest satisfaction—looking upon its establishment as the dawn of a new era in the agricultural history of our State—and confidently expect that it will give an impetus to the growth of rice, which will place it amongst our first staples. We would direct the attention of all persons interested in the agricultural prosperity of Louisiana to this establishment, and urge upon them the policy of promoting its operation. We believe, indeed, that to works of this character is a city as much dependent for its growth and prosperity as to the railroads or canals, a proof of which exists in many vast cities of Europe, which are built up by their internal works, and exist altogether without the appendage of railroads to sustain them.

Before closing this long letter, I will institute a comparison between the profits of the rice and sugar cultivation, the fairness of which can be estimated best by those familiar with the respective crops:—

Sugar.		Rice.	
Av. prod. of 1 man.	Sugar, 8,000 lbs. Molasses, 480 gals.	Av. prod. of 1 man.	Rice, 12,000 lbs.
8000 lbs. sugar, 3½d	$280 00	12,000 lbs. rice, 3d	$360 00
480 gals. molasses, 18d	86 40	Expenses, 25 per cent.	90 00
Total	366 40	Net profit, rice	270 00
Expenses 38 per cent.	120 90	Net profit, sugar	245 50
Net profit, sugar	245 50	Balance favor rice	24 50

The scope of a letter will not permit a very minute comparison, but the above estimate, I believe, closely approximates the reality. It is to be borne in mind, however, that the rice crop requires much less labor than the sugar crop, and that the wear and tear of machinery, stock, &c., is much less in the former than in the latter crop. The cultivation of rice is so admirably described by Mr. Allston, in an article published in De Bow's Review, (April number, 1846,) and in the same work, (October number, 1850,) by Mr. Ruffin, that I would advise all persons interested in this subject to read and study these papers. With these gentlemen, agriculture is treated as a science, which has fixed rules, and which, for its most successful pursuit, requires the application of intellect to the investigation of its laws. With us it is mostly a hap-hazard business, slovenly performed, and exhibiting in its every aspect the want of that impress of mind which renders attractive and ennobles a subject.

Art. XVIII.—THE HOG BUSINESS OF THE WEST.

We copy the following from the *Cincinnati Prices Current* of a late date:—

PRODUCTION OF HOGS.

	1852-3.	1853-4.		1852-3.	1853-4.
Ohio	617,342	734,300	Missouri	112,500	149,845
Kentucky,	369,600	505,225	Wisconsin	35,518	419,000
Tennessee	26,500	58,880	Detroit	10,000	7,500
Indiana	611,018	619,176			
Illinois	361,132	365,784	Grand totals	2,201,110	2,534,770
Iowa	57,500	45,060			

Thus an increase is shown in the crop of 1853–4 of 333,660 head in number. The increase in weight, as nearly as we have been able to ascertain, averaged ten pounds to the hog, east of the Wabash, viz.: in Ohio, Indiana and Kentucky; while in Tennessee, Illinois, Iowa, Missouri and Wisconsin, the increase was fully twenty pounds per head. In our last annual statement, we estimated the hogs as averaging 198 pounds throughout the West. This, we presume, was not far from the actual average, and we therefore take it as the basis for our present calculations. Adding ten pounds for the increase in Ohio, Indiana and Kentucky hogs, the average would be 208 pounds; and adding twenty for the remaining States, the average would be 218 pounds. The entire crop, as reported above, when reduced to pounds, is as follows:—

	1852-3.	1853-4.
Ohio, Indiana, and Kentucky lbs.	316,415,880	386,609,808
Other States	119,423,700	147,383,042
Totals	435,839,580	533,992,850
This makes the increase equal in numbers to, in		
Ohio, Indiana and Kentucky		337,000
Other States		128,000
Total		465,000

The increase in number is a fraction over fifteen per cent. on last year's aggregate, and in pounds the product shows an increase of twenty-two and a half per cent.

With reference to the hogs put up by farmers, it is doubtless true, that the number exceeds that of last year, particularly in the West, where packers were more backward in acceding to the demands of feeders than they were in this section. The product of lard to the hog is considerably greater than last year. Hogs everywhere were fat and larded well, and the high price of this article induced a very full production. Owing, however,

to the fact that the country was almost entirely bare of supplies, in connection with the rapidly increasing home consumption and a very heavy foreign demand, prices are sustained at a point relatively higher than for other hog products.

HOGS DRIVEN SOUTH AND EAST.

We expected to be able to present with this report a full statement of the hogs driven South, and transported to the Atlantic markets; but we have found it impossible, so far, to collect all the facts necessary to such an exhibit.

We have the number received at Buffalo, also the number transported over the Pennsylvania Railroad, Baltimore and Ohio Railroad, and those driven through the Cumberland Gap. These statements we here present, though they make only a partial exhibit:—

	1852–3.	1853–4.
Through Cumberland Gap	53,164	11,100
By Pennsylvania Railroad	5.000	30,102
By the Baltimore and Ohio Railroad	80.510	93,897
Received at Buffalo by Lake	111,223	114,952
By R. R. from Detroit to Niagara Falls	none	7,000
	249,897	257,050

The number forwarded by the New-York and Erie Railroad we have not yet been able to ascertain, though we have made repeated efforts to obtain the information.

The hogs transported by this route were received at Dunkirk by Lake, and by the Lake Shore Railway. There are also some routes from Kentucky to the South, besides the Cumberland Gap, from which it is not possible to obtain reliable information. It would be therefore impossible to compile a complete statement of hogs taken to the Atlantic States and the South. Our information from the Cumberland Gap is official and reliable.

Art. XIX.—RUSSIAN COMMERCE.*

THAT the commerce of Russia has been greatly developed since the peace of 1815, is doubtless the case; but her commercial progress has been far less than that of the Western nations of Europe, and to this circumstance may be ascribed the present power of its government to disturb the peace of the world. Were the numbers of merchants, and the aggregate of their interests in foreign commerce, in as large a proportion to the rest of the people as those of other governments are to the respective population, the government could not lightly sacrifice

* From *United States Economist.*

them to a mere whim. The classified account of the population, as published officially in 1836, was as follows:

	Males.	Females.	Total.
Clergy	273,905	264,472	538,377
Nobles	550,700	565,145	1,115,845
Merchants	131,347	120,714	252,061
Shopkeepers, artisans, &c.	1,339,434	1,433,982	2,773,416
Townspeople	76,322	74,082	150,404
Slaves of the crown	10,441,399	11,022,594	21,463,993
Slaves of the nobles	11,403,722	11,953,873	23,362,595
Tribes	245,715	261,982	507,697
Trans-Caucasians	689,147	689,150	1,378,297
Poland	2,077,311	2,110,911	4,188,222
Finland	663,658	708,804	1,372,462
Colonies	30,761	30,292	61,053
Total	28,896,223	30,237,343	59,133,566

There are twenty-one and a half millions slaves, male and female, in the villages, the property of the crown, and rather a larger number the property of the nobles. The male nobles own, therefore, an average of forty slaves each, living in feudal state. The "shopkeepers and artisans" comprise the inhabitants of towns. The small number of "merchants," or they who transact the commerce of Russia, is divided into three classes. The first, or they who report themselves worth 10,000 to 50,000 roubles, or $7,500 to $37,500, are *exempt from corporeal punishment*, and are allowed to drive two horses; and these include those who are enrolled as foreign merchants. The second are worth 5,000 to 10,000 roubles, and transact *inland* trade only. Third, those who are worth 1,000 to 5,000 roubles. None but native Russians transact inland trade, and those who import goods into Russia must sell them to Russian merchants. As capital is scarce in Russia, imported goods are sold on long credits; but cash is now more the custom than formerly, and the exports are mostly paid in cash. From Nov. to May, usually, produce is sold to merchants to be delivered after May, the shipping season. The linen manufactures generally sell in March, for cash. In this state of affairs, generally, much external commerce could not be expected; and the value of the exports compare with those of other nations, as follows:

	Population.	Exports.	Exports Per head.
Great Britain, 1850	30,323,046	415,000,000	$13.8
United States, 1850	23,267,496	235,000,000	10
France, 1850	35,789,240	168,750,000	4.5
Russia, 1850	59,133,566	75,186,000	1.25

Petersburg and Riga, in the Baltic, are the chief ports. This is but a small result for a power which boasts such resources.

The following table exhibits the quantities of the principal articles of import entered for home consumption in European

Russia, in the years specified, and it will suffice to give an idea of the nature of Russian commerce:

		1842.	1847.	1848.
IMPORTS.				
Sheeps' Wool	lbs.	1,000,368	2,022,696	2,094,264
Dyeing Stuffs		889,016	906,757	879,215
Raw Sugar	cwt.	618,062	259,855	439,209
Refined Sugar		..	217,888	112,810
Machinery and Tools	£.	81,891	298,434	291,149
Wines and Liquors		925,613	1,025,006	1,142,434
Silk Manufactures		635,089	643,270	528,656
Linen Manufactures		54,978	80,255	69,960
EXPORTS.				
Hemp	tons.	38,771	43,903	38,743
Flax		48,849	37,777	60,007
Tallow	cwt.	1,088,017	1,270,240	1,271,599
Sheeps' Wool	lbs.	20,378,772	15,057,480	8,593,056
Linseed and Hempseed	qrs.	772,290	990,775	865,514
Timber, Neals, &c	£.	335,604	595,678	395,622
Grain	qrs.	1,699,366	7,553,847	2,843,397
Flour	£.	102,790	928,292	58,725

For *inland* trade of Russia, Moscow is the leading *entrepot;* for that of China, Kiacta; and the great fair of Nijni Novgorod is one of the most celebrated in Europe.

Some idea may be formed of the quantity of business there transacted, if we give the results of the fair in the year 1849. The transactions in that year are stated to have been less satisfactory than those of 1848. The price of tea was 20 per cent. higher, and injuriously affected the trade in other articles. Money was scarce, owing to the recent stagnation of the corn trade, and the payment for two-thirds of the aggregate purchases is said to have been deferred for periods of twelve, eighteen, and even twenty-four months. With these drawbacks, the total value of the domestic articles at the fair was £7,916,016 sterling. The following found a sale:—Raw materials, £1,917,940; provisions, £858,684; and domestic manufactures, £3,981,716; the total sales of domestic articles amounting to £6,758,340, leaving £1,157,675 unsold. The total foreign articles at the fair amounted to £2,430,191, of which £493,955 worth of European raw materials found a sale, and £204,888 of manufactures. Asiatic articles sold to the extent of £1,329,131; the total sales of foreign articles being £2,027,944, leaving £402,217 unsold. So that, in fact, the total value of both domestic and foreign articles at the fair was no less than £10,346,207, of which £8,786,314 found buyers, and £1,559,893 remained unsold. The quantity of raw cotton entered for home consumption in European Russia was, in 1842, 18,477,144 pounds, and increased progressively to 1848, when it realized 44,331,660 pounds. In 1842, 21,760,380 pounds of cotton twist was also imported, but in consequence of the establishments in Russia, which we shall

particularize presently, decreased, in 1848, to 13,901,142 pounds. The following is an official statement, in a tabular form, of the quantities of raw cotton and cotton yarn imported at St. Petersburg in each year, from 1838 to 1849:

Years.	Raw Cotton. Cwts.	Cott. Yarn. Cwts.	Years.	Raw Cotton. Cwts.	Cotton Yarn. Cwts.
1838	85,541	177,338	1844	173,012	195,605
1839	91,326	163,108	1845	222,057	154,108
1840	77,479	144,935	1846	188,574	122,082
1841	84,704	149,430	1847	244,887	104,397
1842	120,199	188,738	1848	397,137	91,212
1843	131,895	186,362	1849	423,107	64,565

We subjoin a curious statement of the number of cotton-spinning factories at St. Petersburg, with the number of spindles, and the quality and quantity of yarn produced therein on the 29th of February, 1849, since which period they have materially increased. The first-named establishment, under the government director, General Wilson, is said to have been commenced in 1800, on private account; the remainder were established in the years specified. This statement is derived from official sources:

	Mills owned by—	Spindles. No.	Kind.	Yarn Produced. Quality. No.	Qn'ty per day. Hks.	Hs.
	General Wilson	19,000	M.*	38 fair	3½	12
1834.	Steiglitz, Wilson & Co.	60,000	M.	38 good	3½	12½
1836.	Mattzoff & Sobolefsky	2,000 28,000	T. M.	37 fair	6¼	23
1836.	Joint Stock Company	68,000	M.	38 fair	3½	12½
1838.	Thomas Wright & Co.	16,000 44,000	T. M.	37 fair	3½	12½
1843.	Egerton Hubbard	35,000	M.	39 good	4	12½
1845.	Loder, Busk & Co.	36,000	M.	39 good	4	13½
1847.	John Thomas & Co.	25,000	T.	32 good	4	12½
1847.	Mituphanoff	10,000	M.	Not then ready.		

In 1842, Russia imported between 40,000 and 50,000 pieces of white cotton cambrics, besides coverlets, muslins, colored stuffs, gloves, &c., and these articles exhibit a blank for the years 1848 and 1849. The whole amount of cotton manufactures imported in 1848 was valued at £605,290; whereof £415,852 was from Great Britain. Prussia sends about £108,000. The importations of woollen goods also declined. Baizes, camlets, carpets, cashmeres, flannels, and a variety of the best descriptions of woollen goods, of which, in 1844, Russia imported a considerable quantity, exhibit the same unsatisfactory blank in 1848 and 1849, as some of the cotton manufactures. The total imports of woollen goods declined from £619,475, in 1844, to £335,381, in 1848. A premium of five silver roubles per pood is paid on Russian velvets and half velvets exported to China, and six silver roubles on Nankins and other cotton goods. The premium allowed for these exports at the Kiakhta custom-house

* M., mule; T., throstle.

was 92,795 silver roubles in 1847, and 73,643 silver roubles in 1848. At the Astrachan and Moscow custom-houses, on cotton goods exported to the Caucasian frontiers, a drawback of one-half the duty paid on foreign cotton yarn is returned, viz., three silver roubles, twenty-five copecs per pood. This drawback, allowed at Astrachan, was but 3,346 silver roubles in 1847, but increased to 12,969 silver roubles in 1848. In Moscow it amounted to 19,390 silver roubles. The whole amount of premiums and drawbacks, inclusive of Kiakhta tea exported to Poland, the duty on which is returned, and the duty on tobacco of Russian manufacture, the excise duty on which is also returned when exported either by the frontiers or to the kingdom of Poland, amounted in the whole empire of Russia to only £27,969 sterling in 1847, and £26,095 sterling in 1848.

With the exception of raw cotton, the import trade of Russia cannot be damaged by the war; and the export trade, far from important, but more so to St. Petersburg merchants than to any other parties. The suspension of the trade this winter has been great, no person being willing to buy produce to be delivered in the spring, under the present circumstances. As a consequence, financial crisis exists in St. Petersburg, and exchanges are in favor of London. The direct United States trade with Russia, for 1852, was as follows:—

UNITED STATES EXPORTS TO AND IMPORTS FROM RUSSIA, 1852.

DOMESTIC EXPORTS.

	Quantity.	Value.
Oil, Sperm	2,326	$2,992
Lumber	—	250
Oak Bark	—	8,074
Skins and Furs	—	2,893
Cheese, lbs	328	15
Hams and Bacon	6,770	672
Ship Bread, bbls.	174	1,321
Ship Bread, kegs	50	
Rice, tcs	1,122	25,196
Cotton, lbs	10,475,168	962,346
Tobacco, hhds	600	44,515
Drugs	—	100
Other Manuf.	—	12,824
		$1,061,748
In American vessels		860,478
In foreign vessels		201,270

FOREIGN PRODUCE.

	Quantity.	Value.
Coffee, lbs	6,880	$697
Cabinet Wood	—	4,875
Firewood	—	200
Dyewood	—	22,657
Sugar, lbs	350,858	21,146
Dates	2,223	114
Cigars, M	20	350
		$138,732
In American vessels		113,933
In foreign vessels		24,799

IMPORTS TO UNITED STATES.

	Quantity.	Value.
Old Junk	—	$49,981
Oakum	—	3,521
Seeds, &c.	—	737
Books	—	140
Manufactures	—	1,618
Linens	—	60,471
Other Flax	—	32,706
Goods of Hemp	—	238,814
Duck, pcs	1,690	16,208
Duck, Ravens'	7,851	49,168
Bagging, yds	800	8,350
Clothing	—	1,535
Matting	—	6,430
Sheet Iron, lbs	5,185,225	312,106
Scrap Iron, cwt	1,511	4,660
Bar	2,840	7,984
Leather, Sole, lbs	34,472	15,341
Leather, Upper	11,693	$4,780
Skins, Dressed, &c.	104	939
Skivers	47	295
Wool, lbs	178,904	20,260
Soap	3,313	492
Bristles	283,632	203,090
Cordage, Tarred	1,233,410	81,218
Cordage, Untarred	1,623,049	112,146
Twine	4,596	439
Hemp, cwt	25,021	132,018
Codilla	5,710	35,077
Flax	8,208	55,763
Rags, lbs	47,857	1,901
		$1,581,620
In American vessels		1,276,388
In foreign vessels		305,232

Art. XX.—THE SOUTHERN ROUTE TO THE PACIFIC.

TEXAS RAILROAD ACT.

We consider the Act passed at the last Session of the Texas Legislature of such great national importance, as to warrant its insertion entire in our pages. It donates an immense amount of valuable land in aid of the Southern route to the Pacific, and is entitled to be studied with attention by our people.

An Act to Provide for the Construction of the Mississippi and Pacific Railroad.—Sec. 1. Be it enacted by the Legislature of the State of Texas, That for the purpose of aiding in the construction of a Railroad from some point on the eastern boundary line of the State of Texas, not north of the town of Fulton in the State of Arkansas, to a suitable point on the Rio Grande, at or near the town of El Paso, there be, and hereby is appropriated and set apart to any company or companies who may undertake and construct said road, twenty sections of land, of six hundred and forty acres to the section, for each and every mile of said road which may be constructed and put in complete operation according to the terms of this act, to be selected and patented, in the manner hereinafter provided for.

Sec. 2. That a right of way, not exceeding three hundred feet in width, be and the same is hereby set apart and granted along the entire length of said road, through the public lands of the State of Texas, to be held and enjoyed for the uses and purposes of said road forever, and that all earth, stone, timber and other material, of whatsoever character and description, on the public lands, so long as they shall remain the property of the State, in the vicinity of said road, be and the same are hereby made subject to the uses and purposes of said road, as well in the construction thereof as in supplying the same with the necessary furniture and machinery, to be made available as occasion may require, by those employed in the construction, management or working of said road; provided, That said company shall not be allowed to use any timber which may be upon the alternate sections reserved to the State, except upon the three hundred feet granted as the right of way, after the completion of the road.

Sec. 3. That the said road shall be constructed throughout in a thorough, substantial and workmanlike manner, with all necessary drains, culverts, bridges, viaducts, crossings, turnouts, sidings, stations, watering places and all other appurtenances, including equipments of locomotives of sufficient speed and capacity, commodious and comfortable passenger cars, and freight cars adapted to the business to be done, and equal, in all respects and at all times, to a road of the first class when thoroughly organized for business; to be under the constant supervision of a sufficient number of skilful engineers, to be employed by the directors of said road; the rails to be of the best quality, weighing not less than sixty-four pounds to the yard; fifty miles of said road to be finished and put in complete operation within eighteen months after entering into the contract hereinafter provided for, and at least one hundred miles thereof to be finished and put in operation in like manner every year thereafter, until the whole shall be completed.

Sec. 4. That it shall be the duty of the Governor of the State, immediately after the passage of this act, to advertise in such public newspapers as he may judge proper, not exceeding twelve in number, inviting proposals from companies or individuals for the construction of said road, which proposals shall be filed in the office of the Secretary of State, at such time as the Governor may direct, provided said bids are made on or before the first day

of August next; and shall specify the time at which the work shall be commenced; the number of miles to be finished and placed in running order within the first eighteen months and each year thereafter, and at what time the entire road shall be completed, together with the amount proposed to be deposited in the Treasury of this State, according to the terms of this act, to be forfeited in case fifty miles of said road shall not be completed within eighteen months from the timeof entering into the contract hereinafter provided for.

SEC. 5. That it shall be the duty of the Governor, as soon as practicable, to select from the proposals so made, that one which in his judgment, under all the circumstances of the case, shall offer the strongest assurances and guaranties that the road will be promptly and substantially built in its whole length, according to the provisions of this act, and to enter into contracts for the construction of the same, which contracts shall so cover in detail, all the provisions of this act, as to secure the construction and maintenance of a road, at all times equal in all respects to a road of the first class when thoroughly organized for business; and in case those whose proposals may have been accepted, fail or refuse to enter into the contract, then the said Governor may contract with any company or individuals for the construction and maintenance of said road according to the provisions of this act.

SEC. 6. That said contractors, their associates and successors, and those who may become stockholders in said company, shall be, and are hereby declared to be, a body politic and corporate, for and during the term of ninety-nine years, by the name and style of the Mississippi and Pacific Railroad Company, and under that name capable of suing and being sued, imp'eading and being impleaded in law and equity, in all courts and places whatsoever, in like manner and as fully as natural persons, and by said corporate name and style shall be capable in law of contracting and being contracted with; shall have the power of acquiring by purchase, donation or otherwise, real and personal estate, holding and conveying the same, and all other powers, immunities, rights and privileges necessary to carry into full effect the provisions of this act.

SEC. 7. That said corporation is hereby authorized and empowered to survey, locate, construct, complete, alter, maintain and operate a railroad, with one or more tracks or lines of rails from a point not north of the town of Fulton, in the State of Arkansas, to some suitable point on the Rio Grande, at or near the town of El Paso; and for the purpose of effecting the desirable and national object of constructing a continuous and national railway from the Mississippi river to the Pacific Ocean, said company are hereby authorized to form connections and enter into agreements with such other companies as they may see fit, and where such companies are so united by agreements properly entered into and recorded in the office of the Secretary of State of this State, they shall be regarded as one corporation, with all the rights, immunities and privileges necessary to accomplish the object, not inconsistent with the Constitution and laws of the United States, or any of the States through which the said road may be constructed.

SEC. 8. That the capital stock of the company shall be twenty millions of dollars, which may be increased from time to time to any sum not exceeding the entire amount expended on account of said railroad, divided into shares of one hundred dollars each, which shall be deemed personal property, and may be subscribed for, issued and transferred in such manner and at such times and places as may be prescribed in the by-laws of said company.

SEC. 9. That said contractors shall have power to organize said company by calling a meeting of the stockholders, at such time and place as they

may deem expedient, to elect a board of directors to consist of not exceeding fifteen members, one of whom shall be chosen by the directors to act as President, and said directors so elected shall have power to appoint such other officers and agents as they may think proper, and to adopt such by-laws as may be necessary, not inconsistent with the Constitution of the United States, nor the Constitution and laws of the State of Texas, a copy of which by-laws shall be filed with the Secretary of State, and published in at least three newspapers in the State; to provide for the meetings of the Board of Directors; appoint and dismiss officers and agents; regulate the manner of the voting of stockholders; direct the manner in which shares shall be sold, transferred or forfeited; to establish from time to time rates and charges for the transportation of freight and passengers; to make, have and use a common seal, and alter the same at pleasure; issue bonds of not less than five hundred nor more than one thousand dollars; to borrow money upon the bonds of the company or otherwise, for the purpose of constructing said road, with power to mortgage the same to secure the payment of said bonds and loans with the interest thereon; provided, that at the first election of directors as herein provided, the directors shall regulate the manner in which stockholders shall vote.

SEC. 10. That said company may construct its road over or across any stream or body of water, road, highway, or across any other railroad and through any lands owned by individuals or corporations, and in all cases where lands belonging to individuals or corporations shall be taken by said company, it shall be lawful for the owner or agent of such person or corporation to appear before the District Court of the county where such lands are situate, when the damages claimed amount to one hundred dollars or more, or before the nearest Justice of the Peace when the damages are one hundred dollars or less; and said suit shall proceed and be conducted according to the laws in force regulating proceedings in the District Court and in Justices' Courts, as the case may be, and the question of damages shall be tried by a jury, sworn and empannelled as usual in said court, to assess the damages caused by taking such lands, and said jury in rendering their verdict shall take into consideration whether the enhanced value of the residue of the land belonging to such person or corporation has not been by means of said road increased in amount equal to the damages, and if so, they shall render a verdict in favor of said company, otherwise against it, for the amount of damages which he, she or they may have sustained; provided, that in no case shall said company be bound to pay costs, if it satisfactory proves that an amount equal to the damages assessed by the verdict of the jury was tendered to the party suing before the institution of the suit; and the payment of such damages, before or after a judgment, shall operate so as to vest in said company a full and complete title to such land not exceeding three hundred feet width.

SEC. 11. That said company, after they may have commenced receiving toll on any section of fifty miles of said road, shall be bound at all times to have the same in good repair, and a sufficient number of suitable carriages and vehicles for the transportation of persons and property.

SEC. 12. That said company, person or persons, shall, within sixty days after entering into the contract, as herein provided for, deposit with the Treasurer of the State of Texas, at least three thousand dollars in gold or silver, or evidences of debt of the State of Texas, or other good par stocks, as a guarantee that fifty miles or more of said road shall be constructed and in complete order for business within the term of eighteen months from the date of said contract, and if fifty miles or more of said road be completed according to the contract, then the Governor shall cause the said money or stocks to be returned to said company; and in case of a failure upon the part of said company, then such money or stocks to be forfeited to and be-

come the property of the State of Texas; and in case of failure to deposit said amount within the time prescribed, said contract shall be null and void, and the Governor is hereby authorized to enter into another contract, as near as may be in the terms of this act with any other company or individuals for the like purposes.

SEC. 13. That it shall be the duty of the company, so soon as the track of said road may be selected, to cause the vacant lands to be surveyed into sections of six hundred and forty acres each, for thirty miles on each side of the same, and as soon as said company shall have completed fifty miles of said road according to the terms of the contract, they shall be and are hereby authorized to select and designate to the Governor an amount of land to be taken in alternate sections, so that no two sections so selected shall join each other except at one corner, equal to twenty sections for every mile of road so finished, which lands so selected and designated to the Governor, shall be patented to said company or their assigns, free of all costs; and in like manner for each and every section of said road, until the whole shall have been finished; provided, that said road shall cross the rivers Trinity, Brazos and Colorado as near the 32d degree of north latitude as practicable.

SEC. 14. That all of the vacant and unappropriated public lands belonging to the State of Texas, east of the 103d parallel of longitude west from Greenwich, and embraced between the parallel of latitude 31 degs., and 33 degs. north, and all of the vacant and unappropriated lands belonging to the State west of the 103d deg. of longitude, and embraced between the parallels of latitude 30 deg. 30 minutes and 32 deg. north latitude, be, and the same is hereby held in reserve by the State, for the purposes herein set forth, until the track of said road is located by said company; from and after which time there shall be held in reserve by the State, for the purposes above set forth, all of the vacant and unappropriated land belonging to the State, lying within thirty miles on each side of said road, until the same is surveyed and located in accordance with the provisions of the 13th section of the act; provided, that if there should not be a sufficient amount of vacant and unappropriated land belonging to the State embraced in the above last reservation to fully satisfy the amount of land to which said company may be entitled by virtue of a compliance with the provisions of this act, that the Governor cause to be issued by the Commissioner of the General Land Office, certificates for six hundred and forty acres each, to said company, for the balance they may be entitled to, which may be located upon any other vacant and unappropriated land belonging to the State, in such manner that no two sections shall join, except at one corner, at the proper cost and charges of said company or their assigns, which shall be patented to said company as other lands; provided that the alternate sections herein reserved to the State, shall so continue to be reserved to the use of the State until otherwise directed by law; and further provided, that said surveys shall be made in a square, and those adjoining the road shall front one mile thereon and no more, unless prevented by surveys made previous to the passage of this act.

SEC. 15. That should the said company fail at any time to finish the length of said road contracted to be completed within the term specified in the contract, the said contract, with the powers, privileges and immunities, together with such parts of the road as may have been constructed, with all its machinery and appurtenances, shall be forfeited to and become the property of the State of Texas, reserving, however, to said company the right to prosecute and defend all suits and rights, or liabilities which may have accrued or been incurred prior to such forfeiture.

SEC. 16. That should the said contract become forfeited, it shall be the duty of the Governor of the State to re-advertise and re-let the said road to

other contractors, conforming himself in all respects as near as may be, to all the terms and conditions of this act, and such subsequent contractors shall be fully invested with all the powers, rights, privileges and immunities of the first contractors, and subject to the same terms and conditions.

SEC. 17. That the lands granted to said company by this act, shall be alienated by said company as follows:—one-fourth in six years, one-fourth in eight years, one-fourth in ten years, and one-fourth in twelve years, after the same shall have been selected and located by said company.

SEC. 18. That the sum of one thousand dollars, or as much thereof as may be necessary, be, and the same is hereby appropriated out of any money in the Treasury, not otherwise appropriated, to enable the Governor to carry into effect the provisions of this act.

SEC. 19. That this act shall not be so construed as to affect any right of location or entry, pre-emption right or survey heretofore acquired in the district of country reserved and set apart for the use of said road; and that this act take effect from and after its passage.

Art. XXI.—RAILROAD LEGISLATION OF MISSISSIPPI.

AN ACT to aid in the construction of the New-Orleans, Jackson and Great Northern Railroad in the State of Mississippi.

SEC. 1. *Be it enacted by the Legislature of the State of Mississippi*, That it shall be the duty of the Auditor of Public Accounts to credit in his office the Internal Improvement Fund, with the net proceeds of the sale of five hundred thousand acres of public lands donated to this State for internal improvements, by the act of Congress of the 4th of September, 1841, whether the same have been received in cash, or in the bonds and coupons of the Planters' Bank, or in other funds.

SEC. 2. *Be it further enacted*, That the proceeds of the remaining portion of the said five hundred thousand acres of land unsold at the date of this act, be sold and disposed of, as is now provided for by law, and when the same shall be sold, the proceeds thereof shall be, in like manner, credited to the Internal Improvement Fund.

SEC. 3. *Be it further enacted*, That the proceeds of the sale of the sixty thousand acres of said land, loaned for the levee of the Mississippi River, under the provisions of the act of the 15th of March, 1852, and to be reimbursed to the Internal Improvement Fund from the swamp and overflow lands, be also credited to the Internal Improvement Fund.

SEC. 4. *Be it further enacted*, That all moneys rightfully belonging to the Internal Improvement Fund shall likewise be credited by the Auditor to the purposes of this act.

SEC. 5. *Be it further enacted*, That the money in the treasury, and which may hereafter come into the treasury, as contemplated by this act, be, and the same are hereby given, in aid of the construction of the New-Orleans, Jackson and Great Northern Railroad, and the Mississippi Central Railroad, as follows, to wit: One-third part thereof in aid of the construction of the New-Orleans, Jackson and Great Northern Railroad, from the Louisiana State line to the town of Canton, in the State of Mississippi; one-third part thereof in aid of the Mississippi Central Railroad, and the other third part in aid of the New-Orleans, Jackson and Great Northern Railroad, north of Canton, to the Tennessee River: *Provided*, That there be, and there is hereby appropriated out of said Internal Improvement Fund the sum of five thousand dollars for the purpose of surveying out and locating the line of the Gulf and Ship Island Railroad; and that the Governor of this State be, and he is hereby authorized and required immediately after the passage of this act, to appoint

a suitable engineer, whose duty it shall be, so soon as practicable, to employ a suitable number of assistants, and proceed to survey out and locate the line of the Gulf and Ship Island Railroad, so as to secure connection with the New-Orleans, Jackson and Great Northern Railroad, or to the Southern Railroad at a point that would best promote the interest of the State of Mississippi, and the interest of the stockholders of said railroad company: And when the survey herein provided for shall have been completed, it shall be the duty of said engineer to make out the proper profiles, maps, &c., and an estimate of the cost of building said road or route of survey as provided for as aforesaid, and return the same into the office of said Governor; and whenever such surveys, locations and estimates shall have been so made and returned as aforesaid, it shall be the duty of said Governor to issue his requisition upon the Auditor of Public Accounts in favor of said engineer, his agent or assignee, requiring said Auditor to draw his warrant on the State Treasury, payable out of said Internal Improvement Fund, in favor of said engineer, his agent or assignee, as the case may be, for such amount of money as said surveys and locations may have cost; not exceeding said sum of five thousand dollars; and provided further, that so soon as the stock invested by this act can be sold at par, the same is hereby invested in the said Gulf and Ship Island Railroad, upon the same conditions and under the same restrictions as provided for in this act, investing the same in the New-Orleans, Jackson and Great Northern Railroad, and the Central Railroad: *Provided*, that such railroad company shall be regularly organized, and shall have subscribed five thousand dollars in reliable stock in said road: *Provided*, that a sum of money belonging to the Internal Improvement Fund, not to exceed one hundred thousand dollars, when collected, shall be reserved, subject to the requisition of the Governor, in favor of the Mobile and Ohio Railroad Company, in accordance with the provisions of an act approved 16th of March, 1852; and provided, that no stock shall be subscribed by the State in the Ship Island and Gulf Railroad, until the State stock in the other roads shall be sold; and then only an amount of stock equal to the whole proceeds of said sale shall be subscribed; and the first payment thereon shall be equal to the amount then paid on each share of the other stockholders.

SEC. 6. *Be it further enacted*, That it shall be the duty of the Auditor of Public Accounts from time to time to issue his warrant or warrants on the State Treasury, in the proportion stated in the fifth section of this act, in favor of the New-Orleans, Jackson and Great Northern Railroad Company, and in favor of the President of the Mississippi Central Railroad Company, for the sum or sums to which they may be respectively entitled: *Provided*, That there shall be deposited with the State Treasurer a certificate or certificates of stock in the New-Orleans, Jackson and Great Northern Railroad Company for the use and benefit of the Internal Improvement Fund, for an amount equal to the amount of such warrant or warrants as are in favor of said company: and provided, also, there shall in like manner be deposited in the State Treasury a certificate of stock in the Mississippi Central Railroad Company, for the use and benefit of the Internal Improvement Fund, for an amount equal to the amount of said warrant or warrants as are in favor of the said Mississippi Central Railroad Company.

SEC. 7. *Be it further enacted*, That no money shall be paid as part of the Internal Improvement Fund, to the said Gulf and Ship Island Railroad Company, until at least 25 per cent. of the said stock subscribed by individuals shall have been paid in cash; and after the said 25 per cent. shall have been paid, equal amounts shall be paid from time to time thereafter, by the individual stockholders, and by the State as part of the Internal Improvement Fund hereinbefore authorized to be invested, except the sum provided for the survey.

SEC. 8. *Be it further enacted*, That the Governor of the State for the time being be, and he is hereby authorized and directed to represent the State of Mississippi as a stockholder in said New-Orleans, Jackson, Great Northern and Mississippi Railroad Companies, to such extent as the stock subscribed for under the provisions of this act may entitle her under the charter of said railroad companies; and that the Governor report at each regular session of the Legislature the condition of said railroads as exhibited by the reports required to be made under their charters, and from such other sources of information as may be in his power.

SEC. 9. *Be it further enacted*, That all laws and parts of laws that are inconsistent with the provisions of this act be, and the same are hereby repealed, and that this act shall take effect and be in force from and after its passage.

Approved March 2, 1854.

Art. XXII.—MISCELLANEOUS.

IMPROVEMENT OF RED RIVER—NORTHERN COLLEGES—IMMIGRATION.

THE work of blowing out the falls at Alexandria, Louisiana, has been commenced. The plan adopted by the contractors is to deposit a tin canister, by means of a rope and guiding rod, on the surface of the rock to be removed, containing 50 to 150 lbs. of powder. To this is attached a wire, connected with a galvanic battery, which, at the pleasure of the operators, fires the powder. The explosion shatters the rock beneath, and the process is repeated nntil the concussions have displaced the rock to the desired depth. Neither drilling, dredging, nor dragging is employed. The channel will be made from 40 to 60 feet wide, instead of 30 feet, as before reported; but even from 40 to 60 feet will be too protracted for steamboat navigation. The softness of the rock and low stage of the water act as slight drawbacks on operations, but good progress is made with the work. A channel will first be blasted through the lower rapids, and the effect on the river above be ascertained, before going to work on the impediments above.

NORTHERN COLLEGES.—It has been ascertained, says the *Charleston Mercury*, that the opposition to Southern rights under the Constitution, at the North, is not confined to any one portion of the citizens, but men of all classes, creeds, and professions are engaged in traducing our people, and opposing the great measure of the day, the Nebraska bill. Among the most distinguished opponents of this measure—men who talk of disunion, if Southern rights are regarded—are professors of Northern colleges. It becomes a question of some importance to the South, and parents especially, whether our people will continue to be degraded by the support of Northern Colleges, where, among other things detrimental to our peace and happiness, boys will be taught *not* to honor their parents.

We commend to the attention of our readers the following resolution, which was recently adopted at a meeting of the citizens in Richmond, Virginia:—

Resolved, That, in the opinion of this meeting, it is becoming and right in its members, in the people of Virginia, and in the people of the whole South, to encourage and patronize Southern schools, colleges, or institutions; and a just self-respect requires that Southern literature, in all its branches, should meet with the hearty support of all Southern men, in view of the gross slanders and misrepresentations which are disseminated by Northern periodicals and newspapers; and, further, that sound economy, as well as every feeling of independence and self-respect, dictate that the people of the South should patronize and support all those who import goods directly into our waters, and that goods manufactured in our midst, if to be had on fair terms, should always have the preference over such as are made elsewhere.

The Annual Report of the Secretary of State upon the subject of immigration to the United States shows the following results :—

Arrivals in 1853 : 1st quarter, 46,924 ; 2d do., 135,559 ; 3d do., 106,303 ; 4th do., 111,991. Males, 236,596 ; females, 164,481—total, 400,777.

Citizens of the United States who have been abroad and returned : Males, 28,572 ; females, 3,562—total, 32,134.

Total of arrivals : Aliens, 400,777 ; citizens, 32,134—excess of aliens, 368,643.

From Ireland : Males, 86,232 ; females, 76,249—total, 162,489.

From Germany : Males, 83,510 ; females, 57,125—total, 140,635.

From England : Males, 16,908 ; females, 13,445—total, 30,353.

Arrived at New-York, 294,818 ; at New-Orleans, 43,028 ; at Boston, 25,929 ; at Philadelphia, 19,211. Largest number 2d quarter, 135,559.

In 1852 : Total of arrivals, 398,470, including citizens. From Ireland, 158,462 ; Germany, 142,549.

In 1851 : Total of arrivals—aliens, 379,828 ; citizens, 29,367—total, 408,828. From Great Britain, 270,640 ; Germany, 72,602.

1853—Under five years of age, 29,858 ; under twenty years of age, 142,030.

Merchants, 12,802 ; mechanics, 17,397 ; farmers, 48,432 ; laborers, 43,006.

Art. XXIII.—MEDICAL STATISTICS OF THE CENSUS OF 1850.

It is proposed to collect these for publication in tabular forms, for each of the States, in answer to the memorials of Medical Societies, Conventions, &c. In this shape they will occupy 400 or 500 pages octavo. To prepare them by counties, and in greater detail, would require 2,000 pages. The following blank form has been prepared, and is published to invite remarks and criticisms from persons familiar with the subject of vital statistics. Such criticisms will not be too late at any time in the months of May or June, if received at the Census Office, Washington :—

Causes of Death.	*Whites.*	*Blacks.*	*Mulattoes.*	*Married*	*Single.*	*Place of Birth.*	*Occupation.*	*Period of Sickness.*	*Time of Disease.*
Insert all names of diseases.	Divided into males and females, as under 1 yr; between 1 & 5 ; 5 & 20 ; 20 & 50 ; 50 & 100 ; 100 & upwards.	Same divisions as whites.	Same divisions as blacks.			In the state of death ; out of the State, & in the New-England States ; in the Middle States ; in the Southern; in the South-Western; in the Western ; in Germany ; in Ireland ; in the rest of Europe ; other Foreign, &c.	As in mechanic, agriculture, commerce, labor not specified, profession, &c.	Under 1 week ; 1 week, & under 1 month ; 1 month, & under 3 months, &c.	In winter, spring, summer, autumn.